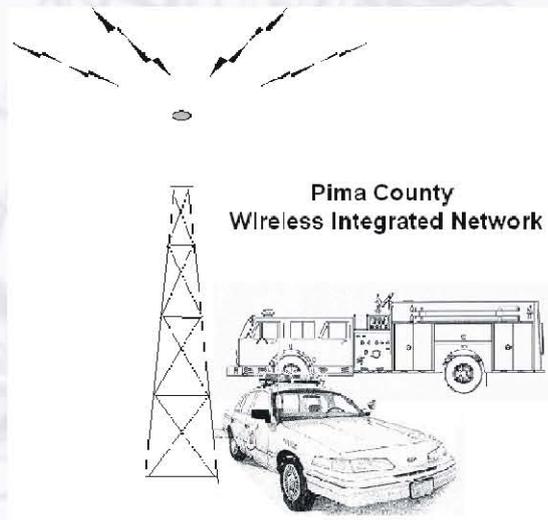




# CTA COMMUNICATIONS, Inc. CONSULTANTS

# FINAL User Needs Assessment Report



## Pima County, ARIZONA

May 24, 2006

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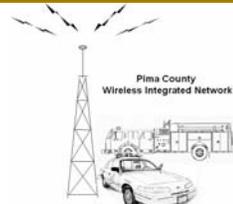
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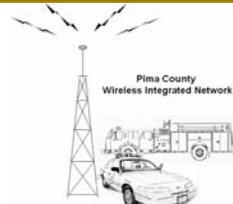


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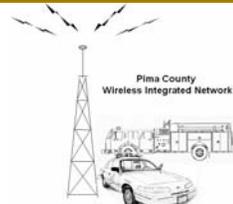
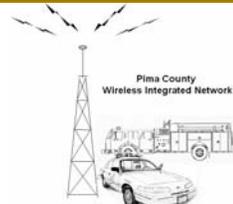
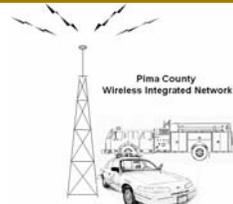


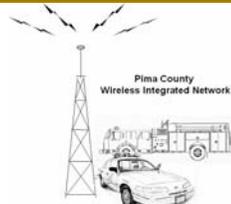
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## 1.0 INTRODUCTION

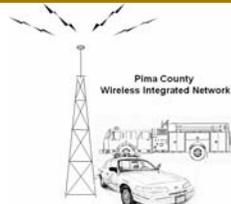
In December 2003, the Pima County Sheriff's Department joined with thirty-one other public safety entities in a collaborative effort to present a plan for a regional public safety communications system to the Pima County Board of Supervisors. The Board of Supervisors agreed to include the proposal on a bond election ballot. The voters of Pima County approved the bond proposal and authorized the issuance of ninety-two million dollars in bonds for the development, procurement, implementation, and management of a regional radio system. The project is called the Pima County Wireless Integrated Network (PCWIN).

The mission of the PCWIN is to *design, procure, deploy and operate a regional public safety voice and data communications network; improve public safety radio interoperability; and to design, construct and operate a regional communications center.*

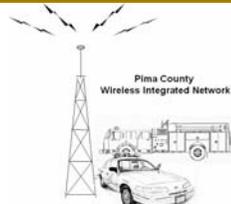
### 1.1 PCWIN Project Goals and Objectives

The PCWIN has adopted the following goals for the project

- Develop a business plan for the Pima County Wireless Integrated Network that includes a concept of operation, conceptual design, budget analysis, system performance specifications, and an operating and maintenance plan.
- Assess the wireless communications needs of first responders within the County, including the demand to coordinate between agencies and to use satellite-positioning technology to maximize the safety of the public and of the first responders.
- Facilitate the execution of intergovernmental or substitute agreements between Pima County and the partner jurisdictions obligating each with specific responsibilities that will further the implementation, operation, support and maintenance of the Pima County Wireless Integrated Network components.



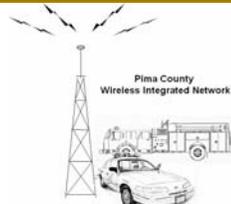
- Recommend to the Pima County Board of Supervisors policy, procedures and expenditures that will further the Pima County Wireless Integrated Network project in a manner benefiting the citizens of Pima County and the public safety community.
- Acquire supplemental federal funding.
- Invite participation in the Pima County Wireless Integrated Network by other self-funded local, county, state and federal agencies.
- Improve communications interoperability between the project partner agencies and other state and federal agencies with whom they must communicate.
- Implement a voice communications network that utilizes modern, state-of-the-art technology to support the voice communications needs of the agencies authorized by Pima County Ordinance No. 2004-18 and to improve communications interoperability between PCWIN public safety agencies.
- Provide a working level of widespread on-street voice radio coverage throughout Pima County and enhanced in-building penetration within the City of Tucson. The proposed systems shall be able to accommodate enhancements to extend coverage outside Pima County for those agencies with service areas outside the County.
- Implement a data communications network, network standards, policies and procedures to provide widespread wireless data on-street coverage to support the computer aided dispatch, mobile incident reporting, and automatic vehicle locator applications deployed by the project partner agencies.
- Design, construct, occupy and operate a regional communications center co-locating the 9-1-1 public safety answering points and dispatch functions of the Pima County Sheriff's Department and the City of Tucson with the Pima County Emergency Operations Center.



- Implement an automatic vehicle location system solution that will provide the user community with the ability to manage field resources based upon their proximity to emergency incidents.

The following are specific project objectives:

- Reuse of existing infrastructure such as antenna, microwave and other communications network resources and facilities to minimize costs and lessen environmental impact.
- Deployment of a “standards” based system that will provide for compatibility with other standards based systems in the State. (It is desirable that a network in Pima County could interface with the system currently being installed by the Cities of Phoenix and Mesa.)
- Deployment of a digital 800MHz or 700MHz trunked radio system operated throughout Pima County. Channel resources in the 800MHz band are already licensed to project partner agencies, including the County.
- Provide a high performance data communications network to support mission critical applications.
- Implement an automatic vehicle locating solution that may include integration of existing solutions. GPS capability in mobile radios will send coordinates of vehicles to a mapping application so that agencies can immediately identify, locate and manage vehicle and personnel resources.
- Provide initial subscriber equipment to participating partners.
- Design and construct a building equipped with radio communications and telecommunications infrastructure, furnishings and other equipment necessary to relocate the County Emergency Operations Center, and 9-1-1 and dispatch operations for the City of Tucson and Pima County into one regional facility.



In order to accomplish these project goals and objectives, PCWIN has established five project phases:

- Phase I Business Architecture Planning
- Phase II Conceptual Architecture Planning
- Phase III Procurement Technical Specification
- Phase IV Systems Integrator RFP Solicitation Support
- Phase V Technical and Project Management Oversight

## 1.2 Business Architecture Planning Overview

The Business Architecture Planning Phase involves the development of five different reports: the User Needs Assessment Report; the Legacy Systems Characterization Report; the Systems Alternatives and Recommendations Report; the Concept of Operations Report, and the Business Plan. This report document, the User Needs Assessment Report, is the first of the five reports.

## 1.3 User Needs Assessment Goals and Objectives

In this report we will compile and discuss the results of our meetings with the potential users of a new system. This Needs Assessment is focused on three specific areas: (1) desired voice radio capabilities, characteristics and functions; (2) mobile data radio system capabilities including an automatic vehicle locator (AVL) capability; and (3) the operational, functional, and technical facility and systems requirements of a combined Pima County/City of Tucson 9-1-1 PSAP, dispatch and emergency operations center. We will consider in this assessment the anticipated growth (both population and land development) in Pima County over the next twenty years.



### 1.3.1 Voice Radio Systems

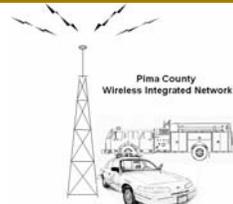
At present, there are a variety of separate radio systems in use by the public safety agencies in Pima County, operating on different frequency bands and using different technologies. Because of the diversity in technology and frequencies used, the ability of personnel from one agency to communicate with personnel from another agency by radio is often challenging. In addition, there are a number of deficiencies in some of the existing systems. The following are the goals and objectives of the needs assessment for the voice radio systems:

- To identify the various systems currently in use by public safety agencies in Pima County. (More details on this task will be included in the Legacy Systems Characterization Report, to be supplied later.)
- To define the current environment of those systems
- To define the positive attributes of the current systems – what is working well now and shouldn't be changed
- To identify the attributes that are needed now, but that the current systems do not provide
- To identify desired attributes of a new system in the Future Environment

### 1.3.2 Mobile Data and AVL Systems

The current mobile data system environment ranges from no mobile data access to sophisticated systems that have recently been implemented. The following are the goals and objectives of the needs assessment for the mobile data and automatic vehicle locator (AVL) systems:

- To identify the various systems currently in use by public safety agencies in Pima County
- To define the current environment of the existing mobile data systems
- To define the privacy and protection mechanisms necessary to satisfy the various legal requirements placed on the system
- To define the technical network requirements of the mobile data applications currently in use – what works well and what is needed
- To define the requirements of a future data radio network, including AVL



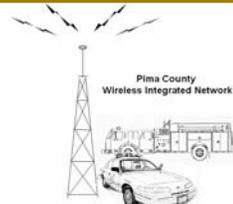
### 1.3.3 Communications/Emergency Operating Centers

There are eight primary 911 Public Safety Answering Points in Pima County. Five of these centers answer incoming wireline and wireless emergency 911 calls, while three of the centers are primaries for only wireline. Seven of the primaries also dispatch public safety responders while one provides a call screening and the transfer of calls to a secondary center for dispatching.

In addition to the eight primary centers, there are five secondary public safety answering points in Pima County. These centers receive 911 calls that have been answered by one of the primary PSAPs and then transferred to the secondary PSAP. The secondary PSAP dispatches different public safety resources. For example, a 911 call reporting a fire that was initially answered by the Pima County Sheriff's Department in Tucson would be transferred to the secondary PSAP that dispatches the fire department covering the location of the call. In addition to the primary and secondary PSAPs, there are four 911 transfer points. These centers receive the voice transfer and the ALI information is sent to a fax machine.

As noted above, the PCWIN project specifically includes the goal of developing a regional emergency communications center housing the Pima County Sheriff's Department and the City of Tucson. The other partner dispatch centers were included to provide a complete picture of the current situation. The following are the goals and objectives of the needs assessment for the Communications and Emergency Operating Centers:

- Define the current environment including the staff and services provided
- Describe the current traffic volume and the service area covered
- Describe the systems and equipment currently in use
- Identify elements of the current environment that work well and shouldn't be changed
- Identify current needs that are not being adequately addressed by the current environment and facilities
- Identify future needs and requirements for the new centers



## 1.4 User Needs Assessment Methodologies

### 1.4.1 Voice Radio Systems

CTA Communications developed a project work plan for conducting the User Needs Assessment. After approval of the work plan by the PCWIN Project Director, we began by collecting and reviewing existing data. We reviewed the *Pima County Wireless Integrated Network Technical Requirements Document*, the *Pima County Wireless Integrated Network 2004 Voice and Data Communications Technical Assessment*, and the *City of Tucson Radio Replacement Project Phase II Final Report*. In addition, we developed and distributed a radio usage survey form. After an Initialization Meeting in Tucson, a team from CTA Communications spent ten days in Tucson conducting more than forty interviews of the various users to gain first-hand insight. Interview records have been prepared and sent to the involved parties for review. Those interview and survey records became the basis for the preparation of this report.

### 1.4.2 Mobile Data and AVL Systems

Information on the mobile data systems and requirements was obtained by the CTA team at the same time information was obtained on the voice radio systems. A separate mobile data survey form was developed and distributed to participating agencies.

### 1.4.3 Communications/Emergency Operations Centers

The CTA team specifically focused on the Communications and Emergency Operating Centers employed a slightly different methodology. In addition to the review of existing information, a dispatch survey was developed and distributed. After the initialization meeting, the CTA team visited each of the sixteen centers. Interviews were conducted with management and dispatch personnel, and then the equipment in each center was documented by CTA as part of our survey.



Interview records were drafted and sent to the involved parties for review. Those records and the surveys became the basis for the communications/emergency operating center portion of this report.

## 1.5 Community Profile<sup>1</sup>

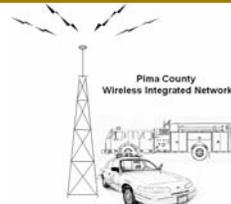
Pima County is located in southern Arizona and encompasses 9,184 square miles. The second largest of the four original counties, Pima County was created by the first territorial legislature for Arizona on November 8, 1864. As originally constituted, Pima County included almost the entire portion of the United States originally acquired from Mexico in the Gadsen Purchase. Over time, portions of Pima County were carved off to create Maricopa, Pinal, Cochise, and Graham Counties.

Pima County lies within the Basin and Range Physiographic Province, characterized by northwest-trending mountain ranges separated by alluvial basins. Separated by the Tucson and Sierrita Mountains, a large portion of Pima County lies in two alluvial basins: Avra Valley to the west and the Tucson basin in the east. Elevation varies from desert valleys at roughly 1,200 feet to the 9,185-foot peak of Mount Lemmon. Numerous mountain ranges ring the Tucson basin, including the Santa Catalina, Rincon, Empire, Santa Rita, Sierrita, and Tucson mountains.

The governmental and administrative affairs of Pima County are directed by a five-member Board of Supervisors with each member elected from a designated district to serve a four-year term. Each of the five municipalities in the County (Marana, Oro Valley, Sahuarita, South Tucson, and Tucson) is governed by a council-manager form of government, with an elected Council consisting of seven members, including a mayor and vice mayor and an appointed town or city manager. The two tribal communities participating in this project (the Pascua-Yaqui Tribe and the Tohono O'odham Nation) are governed by elected tribal councils.

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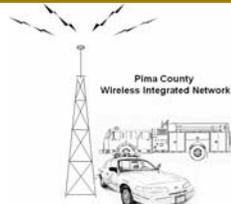
<sup>1</sup> Information for this section was taken from the Pima County Multi-Jurisdictional Hazard Mitigation Plan (Draft: October, 2005).



Approximately 70 percent of Pima County consists of federal, state, and Native American owned lands. The San Xavier, Pascua Yaqui, and Tohono O’odham reservations account for ownership of 42 percent of the land area; 15 percent of the land area is owned by the state of Arizona; 12 percent is controlled by various federal agencies (primarily by the U.S. Forest Service and Bureau of Land Management).

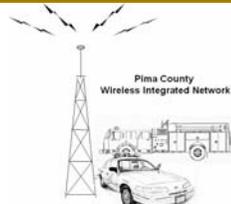
According to 2004 estimates, Pima County is currently home to approximately 931,000 residents, shown in the table below. Containing a relatively large portion of Arizona’s overall population (16.5 percent) and growing by 26.5 percent from 1990 to 2000, the County experienced a slower rate of growth than witnessed statewide at 40 percent. A majority of the population resides in the eastern portion of the County, including all five incorporated jurisdictions. Two of Pima County’s incorporated entities were the fastest growing jurisdictions within the state of Arizona from 1990 to 2000 – Marana grew by 520% and the Town of Sahuarita by 345%. The table below depicts population within the County in 1990 and 2000, and projections for the years 2010, 2020, 2025 and 2030.

Population for Pima County and Incorporated Entities 2000-2030							
Jurisdiction	1990	2000	2004	2010	2020	2025	2030
Marana	2,187	13,566	23,520	43,105	73,622	87,440	96,541
Oro Valley	6,670	29,700	38,280	45,779	58,601	65,498	70,559
Pascua Yaqui	2,412	3,315					
Sahuarita	1,629	3,242	9,715	24,388	43,657	50,610	55,877
South Tucson	5,093	5,490	5,580	5,780	6,030	6,155	6,255
Tohono O’odham Nation	2,750	2,799					
Tucson	405,390	486,699	521,605	591,251	786,7789	825,508	915,904
Unincorporated County	240,749	305,049	332,510	350,015	373,188	370,284	361,537
<b>Total</b>	<b>666,380</b>	<b>843,746</b>	<b>931,210</b>	<b>1,600,318</b>	<b>1,291,887</b>	<b>1,405,495</b>	<b>1,506,673</b>



The City of Tucson, located in the eastern portion of Pima County, is the center of economic activity for the County. A majority of workers in Pima County are employed in the service sector of the economy, followed by government, construction, manufacturing, trade and transportation.

The labor force reflects the influence of tourism, academia, and the retirement community in the Tucson metropolitan area. In September of 2004, the average unemployment rate in Pima County was 3.9 percent, compared with a statewide average of 5.0 percent.



## 2.0 VOICE AND MOBILE DATA RADIO SYSTEM CAPABILITIES

### 2.1 Participating Agencies

#### 2.1.1 Arivaca Volunteer Fire Department

##### A. Current Environment

##### 1. Operational

Arivaca has 12 personnel, 4 trucks and 2 ambulances. Radios include 10 mobiles and 15 portables. The department currently operates with 6 mobile data computers. Drexel Heights Fire Department provides dispatch services for the Arivaca Fire Department.

##### 2. Functional

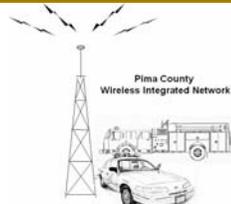
The Arivaca service area includes the town and valley of Arivaca and the Sasabe area.

##### 3. Technical

The Arivaca Volunteer Fire Department conducts operations on the Arivaca VHF Repeater licensed on 154.355 MHz. The department also holds fixed base licenses on 155.295 MHz and 154.355 MHz and a control station license on 154.010 MHz.

##### 4. Interoperability

TABLE 2.1.1A shows the existing direct interoperability capabilities with other agencies for the department.



B. Positive Attributes of Current Environment

1. Operational

The Fire department likes the simple reliable system in operation today.

2. Functional

The system operates satisfactorily and there are no significant functional issues with the system.

3. Technical

The Arivaca Volunteer Fire Department is satisfied with radio communications on their current VHF system.

C. Desired Attributes of Current and Future Environment

1. Operational

The department indicates significant growth, approximately doubling people and equipment in the five years.

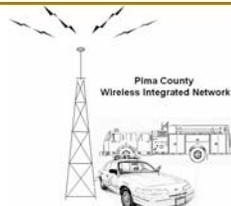
2. Functional

Growth should be contained within the current service area.

3. Technical

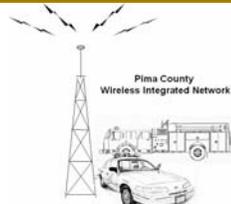
4. Interoperability Matrix

TABLE 2.1.1B shows the future interoperability requirements with other agencies for both the department.



5. Attributes Matrix

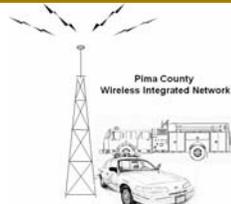
Please refer to TABLE 2.1.1C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

None.



## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** Arivaca Volunteer Fire Department

**Contact Name:** Tilda Martinez

**Position:** Captain

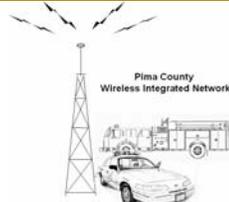
**Phone:** 520-398-8000

**Email:** tildaandtony@earthlink.net

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	Shift 4
<b>Mobiles</b>	<b>10</b>					
<b>Portables</b>	<b>15</b>					
<b>Control Stations</b>	<b>0</b>					
<b>Paging units</b>	<b>0</b>					
<b>Other Devices</b>	<b>0</b>					

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**




Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	2	yes
Water Tender	1	yes
Pumper/ Engine	1	yes
Ladder Truck	0	
Ambulance	2	yes
Patrol Vehicles	0	
Jail Transport	0	
Special Ops	0	
Vehicular Repeaters *	0	
Disposal Collector	0	
Maintenance Truck	0	
Utility Trucks	0	
Highway Maintenance	0	
Vans	0	
Buses	0	
Cars	0	
Other (Please Describe)	0	

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:












Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

We replace radios on a need to basis, this year we are replacing the portable radios, unknown when the last mobile radios were replaced

Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\PCWIN Radio Usage Survey.DOC



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** Arivaca Volunteer Fire Department

**Contact Name:** Tilda Martinez

**Position:** Captain

**Phone:** 520-398-8000

**Email:** tildaandtony@earthlink.net

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

#### I: CURRENT SITUATION

Mobile data equipment do you currently have 6

Age: unknown Condition: good Adequate: yes

Mobile data functions that you currently have and use:

Computer Aided Dispatch: none Name of CAD system: \_\_\_\_\_

Access to Records Management: \_\_\_\_\_ Name of RMS system: \_\_\_\_\_

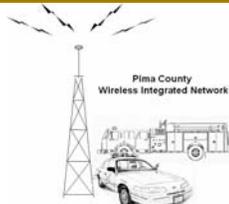
Records functions available: \_\_\_\_\_

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_\_

Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging: Car to car: \_\_\_\_\_ Car to dispatch: \_\_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_\_ State: \_\_\_\_\_ National : \_\_\_\_\_



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

Seems to work for our needs \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

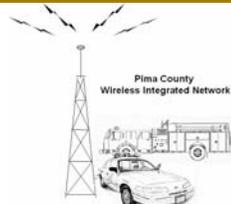
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

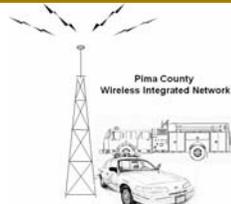
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	0				
Wireless Handhelds (PDA's)	0				
AVL equipped	0				
Digital Pagers	0				
Tone Voice Pagers	0				
Other Devices _____	0				

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	0
Query (license checks, vehicle registrations, wanted persons, property checks)	0
Car-to-car or car-to-dispatch message	0
Status updates	0
Emails	0





#### 4. Computer Systems Checklist – Fire & EMS Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Fire and EMS Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Fire and EMS Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity, as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

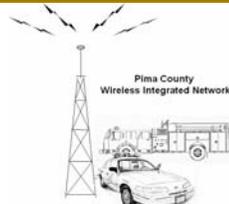
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

**Fire and EMS Department Checklist**

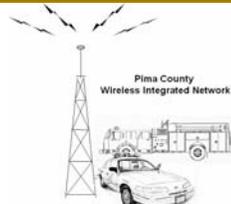
- 1) Department Name Arivaca Volunteer Fire Department
- 2) Contact Name Tilda Martinez
- 3) Contact Telephone Number 520-398-8000
- 4) Primary Response Area Arivaca and Sasabe  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 12 5 Year Growth 30
- 6) Number of Fire Trucks and/or Engines  
Current 3 5 Year Growth 5
- 7) Number of Rescue and/or EMS response vehicles  
Current 2 5 Year Growth 5
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
Description \_\_\_\_\_  
Current 0 5 Year Growth 2  
Description \_\_\_\_\_  
Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

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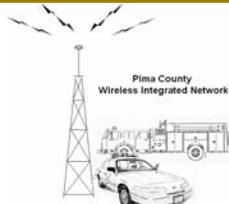
- Description \_\_\_\_\_
- Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_
- 9) Number of Fire or EMS stations
- Current 1 5 Year Growth 2
- 10) Number of Fire and/or Response Zones
- Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_
- 11) Number of Fire runs per year
- Current 20 5 Year Growth 30+
- 12) Number of EMS responses per year
- Current 280 5 Year Growth 350
- 13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.)
- Current 40 5 Year Growth 100
- 14) Number of calls (included above) that are out of your District/Jurisdiction.
- Current 16 5 Year Growth 20
- 15) Number of calls (included above) that are out of Pima County.
- Current 0 5 Year Growth 0
- 16) Number of calls (included above ) that are out of Arizona.
- Current 0 5 Year Growth 0
- 17) Number of HAZMAT pre-plans



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Wireless Integrated Network (PCWIN)

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- Current 0 5 Year Growth 0
- 18) Number of structure and location pre-plans
- Current 0 5 Year Growth 0
- 19) Number of Move-up Plans
- Current 0 5 Year Growth 0
- 20) Number of fire hydrants
- Current 3 5 Year Growth 6
- 21) Number of Mobile Data terminals
- Current 0 5 Year Growth 0
- 22) Number of Station Computers or others that would log-on to the network
- Current 1 5 Year Growth 3
- 23) Number of personnel that would require an individual log-on password
- Current 3 5 Year Growth 3



**Provisions of NFPA 1221**

**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

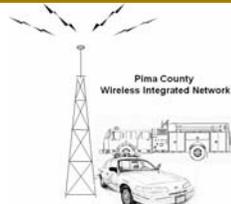
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

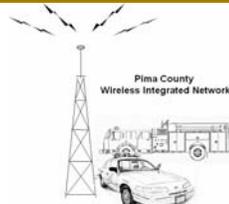
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



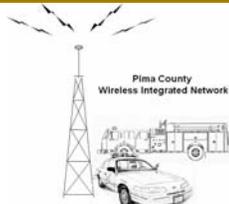
**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

Drexel Height Fire Department provided CTA with the following documentation items:

- Fire Rescue Dispatch and Channels
- Frequency Bands

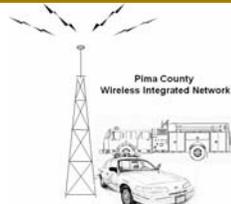


TABLE 2.1.1A Existing Interoperability

Agency Types		Agency Types		Agency Types	
Arivaca Vol. FD		Arivaca Vol. FD		Arivaca Vol. FD	
	Ajo/Gibson Vol. FD				Bureau of Alcohol, Tobacco, Firearms & Explosives
	Arivaca Vol. FD				Customs and Border Protection
	Avra Valley Fire District				Drug Enforcement Administration
	Corona de Tucson Fire District				Emergency Man. & Homeland Security
	Drexel Heights Fire District		Marana PD		Federal Bureau of Investigation
	Elephant Head Vol. FD		Oro Valley PD		Immigration and Customs Enforcement
	Golder Ranch Fire District		Pascua Yaqui PD		National Park Service
	Green Valley Fire District		Pima College Dept. of Public Safety		Bureau of Land Management
	Helmet Peak Fire District		Pima County OEM & Homeland Security		U.S. Fish & Wildlife
	Mt. Lemmon Fire District		Pima County Sheriff's Dept.		U.S. Forest Service
	Northwest Fire District		Pima County Sheriff's Dept. - Ajo		U.S. Marshals Service
	Pascua Pueblo FD		Sahuarita PD		Arizona Dept. of Public Safety
	Picture Rocks Fire District		South Tucson PD		Arizona Game and Fish
	Rincon Valley Fire District		Tohono O'odham Tribal Police		
	Rural Metro Fire/Southwest Ambulance		Tucson Airport Authority PD		
	South Tucson FD		Tucson PD		
	Three Points FD		University of Arizona Police		
	Tohono O' odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				

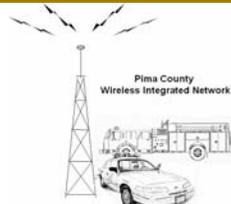
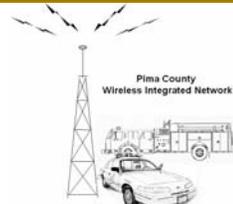


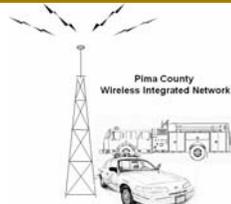
TABLE 2.1.1B Future Interoperability

Fire Agencies		Police and Emergency Services Agencies		Federal Agencies	
Agency Types	Arivaca Vol. FD	Agency Types	Arivaca Vol. FD	Agency Types	Arivaca Vol. FD
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives
	Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection
	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration
	Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security
X	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation
	Elephant Head Vol. FD	X	Pima County Sheriff's Dept.		Immigration and Customs Enforcement
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service
	Green Valley Fire District		Sahuarita PD		Bureau of Land Management
	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife
	Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service
	Northwest Fire District		Tucson Airport Authority		U.S. Marshals Service
	Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety
	Picture Rocks Fire District		University of Arizona Police	X	Arizona Game and Fish
	Rincon Valley Fire District				
	Rural Metro Southwest Ambulance				
	South Tucson FD				
	Three Points FD				
	Tohono O'odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				



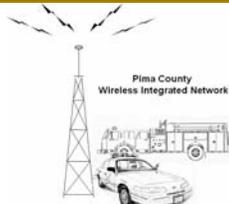
**TABLE 2.1.1C**  
**Arivaca Volunteer Fire Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern Count	3.0	
2	Improved Voice Radio Coverage – Central Count	3.0	
3	Improved Voice Radio Coverage – Western Count	3.0	
4	In-building Coverage	5.0	
5	Minimize Local Interference	3.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	2.0	
7	On-scene Fire Channels	5.0	
8	Monitored Firegrounds	5.0	
9	Emergency Alerting	5.0	
10	Workgroup Oriented Operation	3.0	
11	Voice Security	3.0	
12	Operational Boundary Transparency	3.0	
13	One System Serves All Agencies	3.0	
14	Interoperability through Dispatch	5.0	
15	Interoperability with Adjacent Counties	3.0	
16	Interoperability with State Agencies	4.0	
17	Interoperability with Federal Agencies	5.0	
18	Person Location	3.0	
19	System Control	5.0	
20	Recorded Operations	2.0	
21	Simplified User Operations	5.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	2.0	
23	Dispatch Capacity	2.0	
24	Dispatch Coverage	2.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	2.0	
26	Cross CAD Interconnection	2.0	
27	Mobile Data Criticality	2.0	
28	Vehicle Location	2.0	
29	EMS Telemetry	5.0	
30	High-Speed Broadband Service	2.0	
31	Mobile Applications	2.0	
32	Advanced Mobile Applications	2.0	
33	Access County Information	2.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	2.0	
35	Fire Station Alerting	2.0	
36	Paging over Cellular	2.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	3.0	
38	Owner-Controlled Backbone	3.0	
39	Microwave Connectivity	2.0	
40	Microwave Additional Capacity	2.0	
41	Regional Connectivity	2.0	
<b>Reliability and Availability</b>			
42	Survivability	4.0	
43	Reliability/Failure Hierarchy	4.0	
44	Single Points of Failure	3.0	
45	Power Backup	3.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	5.0	
47	Centralized Maintenance	5.0	



**TABLE 2.1.1C**  
**Arivaca Volunteer Fire Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	5.0	
49	Commonality of Equipment	4.0	
50	Multiple Sources	4.0	
51	Phased Implementation	2.0	
52	Tiered Subscriber Cost	5.0	
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.1.2 Corona de Tucson Fire District

### A. Current Environment

#### 1. Operational

Operations are 24 hours per day staffed with 5 people during day and 3 people during the night. The department has 25 UHF radios, 8 are mobiles and, 16 are portables. The desktop Control Station is located at the Fire Department. There are 10 apparatus located at the fire station including the fire chief's vehicle. The Rural Metro /Southwest Ambulance Center provides dispatch services for the Corona de Tucson fire Department through tone alerts to pagers and radios.

#### 2. Functional

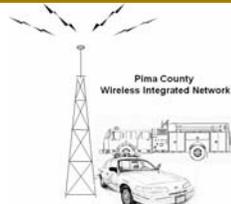
The department is located at 99 E. Tallahassee in Corona de Tucson and the fire district encompasses approximately 30 square miles and includes the town of Corona de Tucson. Currently there are coverage problems down Sahuarita highway and on highway 10.

#### 3. Technical

The Corona de Tucson Fire Department operates a UHF radio system. Two different channels are used to support their operations. The repeater is designated as F1 operates on 458.55. It is located at the fire station. The department also uses the UHF simplex channel (453.55) for fire ground operations.

#### 4. Interoperability

TABLE 2.1.2A shows the existing direct interoperability capabilities with other agencies for the department.



The department has VHF radios to support fire operations on state/federal land.

B. Positive Attributes of Current Environment

1. Operational

The department is equipped with a sufficient number of radios for the short-term.

2. Functional

Current system operationally and functionally meets the current needs; however, future functional needs such as access to CAD records, mobile mapping, building mapping, and HazMat need to be considered.

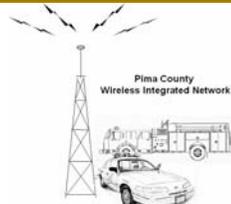
The department is currently able to support its service area. All departments would like to have access to CAD records, mobile mapping, building mapping, and HazMat

3. Technical

C. Desired Attributes of Current and Future Environment

1. Operational

The radio system upgrade should address static problems currently being experienced on the system and provide clear communications channels. Intrinsically safe portable radios are needed



2. Functional

A system upgrade should contribute to improving coverage performance especially to the east which is the department's growth area.

3. Technical

A system upgrade should include a wide-area type system that shares common channels or facilitate network disparate frequency band. A dedicated mobile data system and vehicle location capabilities for fire rescue services should be incorporated into long-term plans.

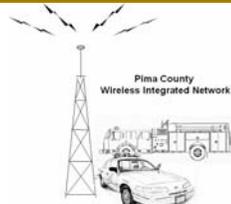
4. Interoperability Matrix

TABLE 2.1.2B shows the future direct interoperability capabilities with other agencies for the department.

Radio Interoperability should include a network gateway to facilitate communications with agencies not currently accessible. Communications with the Sheriff's Office, the Tucson Police Department, Department of Public Safety, Airevac, Lifenet, and local fire departments (Rural Metro, Rincon Valley, Tucson, Mescal, Sonoita/ Elgin) is required.

5. Attributes Matrix

Please refer to TABLE 2.1.2C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Rural Metro/Southwest Ambulance  
South Tucson Fire Department  
Corona de Tucson Fire Department  
Elephant Head Fire Department

**File Name:** - 030106 County Fire Department Final 1  
Interview Record.doc

**Date of Interview:** - March 01, 2006

**Location of Interview:** - Pima County Sheriff Department

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

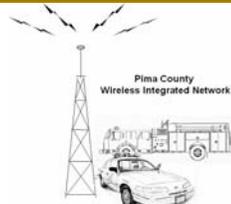
The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Rural Metro/Southwest Ambulance is responsible for 124 square miles and covers a majority of Pima County. Rural Metro/Southwest is located at 3759 North Commerce Drive, Tucson, in a 20,000 square foot building. The fleet maintenance operations reside at this location.
2. The Elephant Head Fire Department is staffed with volunteer firefighters.
3. Corona de Tucson Fire Department is responsible for approximately 30 square miles.

**Present Situation**

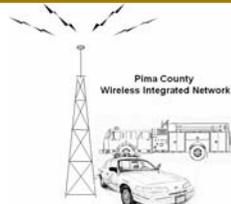
1. Elephant Head personnel currently have pagers and portables equipped with Motorola quick call. There are 30 firefighters on staff. The fire trucks are stationed at the firefighters homes. During an emergency fire call, 3-4 units will respond. Ambulances do not transport patients. The department has 7-8 apparatus.



2. The Elephant Head Fire Department's primary radio transmitter site is located at Elephant Head Peak.
3. The Corona de Tucson Fire Department is currently upgrading one tower and building at their stations. The tower is a 120 foot self supporting tower located at 99 Thistle Avenue.
4. The Corona de Tucson Fire Department is dispatched through tone alerts to pagers and radios. Operations are 24 hours per day staffed with 5 people during day and 3 people during the night. The department has 8 trucks and 1 ambulance. The ambulance does not transport.
5. Corona de Tucson Fire Department utilizes two frequencies; both are used in simplex or talk around mode.
6. Rural Metro/ Southwest Ambulance currently have 150 vehicles, and 40 dispatchers that work two (2) 12 hour shifts with 8-10 to 10 dispatchers staffed per shift. There are plans to add 10 dispatchers over the next 2 years. They also utilize a helicopter service (Copter Line) that operates from St. Mary's Hospital.
7. Samuel Well and Graham area ambulances are dispatched at Rural Metro. They have 13 fire stations and 8 ambulance sites. Northwest Fire and Golder Ranch are dispatched from Tucson Fire.
8. Rural Metro / Southwest Ambulance radios are mobiles: TK730, TK830, TK2170, TK2180, TK790, and TK890; portables 272GE, 273GE, TK280, and TK380. Consoles for dispatch are Centracom Gold Elite. CAD is GEAC, text based CAD, and NFIR (national fire record management system).
9. Rural Metro has a 60 foot self supporting tower with 1 UHF yagi, 3 VHF vertical, 3 VHF yagi for Rural Metro Elephant Head repeater, South Tucson repeater, and Green Valley. Repeater at 32 North Stone is VHF 153.150 Simplex, 159.090 TX, 153.815 RX medical dispatch only, and 155.75 after dispatch use. Mt. Lemmon is backup for Southwest Tucson and prime for Pinal County.

**Present Problems**

1. Elephant Head Fire Department would like better radio coverage.



2. Corona de Tucson Fire Department has coverage problems down Sahuarita highway and can not talk to Med line on highway 10.

**Future Requirements**

1. All departments would like to have access to CAD records, mobile mapping, building mapping, and HazMat.
2. Rural Metro / Southwest Ambulance would like to have mobile data capabilities in the future.

**Additional Comments**

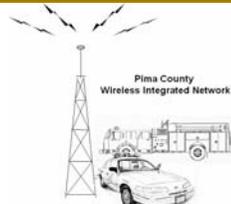
1. Survey forms were provided by the organizations at each of the sites.

The draft of this record was sent to Captain Paul Wilson on March 31, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:  
Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\030106 County Fire Department Final.doc



## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Corona de Tucson F.D.

Contact Name: Doug Roth

Position: Asst. Chief

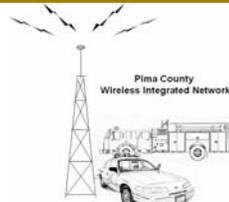
Phone: 520-762-5007

Email: droth@coronafire.org

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	
<b>Mobiles</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>8</b>	<b>n/a</b>
<b>Portables</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>n/a</b>
<b>Control Stations</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>n/a</b>
<b>Paging units</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>11</b>	<b>m/a</b>
<b>Other Devices</b>						

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

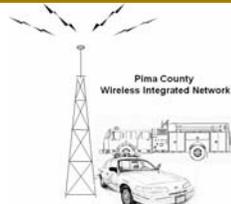
**Clarifications:**

Mobiles: Our EMS/Fire operations are on UHF. We also have 3 VHF mobiles for wildland fires.

Portables: We also have 3 VHF wildland portables.

We did not include any of our VHF radios in this survey as they are used for wildland fires on STATE/Federal lands (outside scope of PCWIN project).

We listed the entire inventory of radios for all 3 shifts because off duty firefighters and reserves need them to respond to incidents from home if necessary.



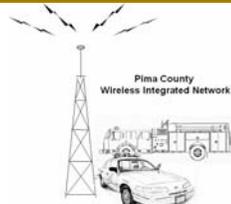
c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	1	yes
Water Tender	2	yes
Pumper/ Engine	2	yes
Ladder Truck		
Ambulance	1	yes
Patrol Vehicles		
Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars		
Other (Please Describe)	2	yes

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

**Clarifications:**

Other: 1 Rescue
1 Chief's vehicle



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
99 E. Tallahassee	1	Fire/EMS

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

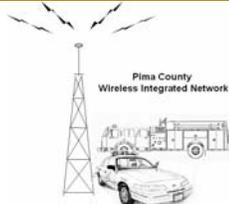
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_







Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**Clarifications:**

\*See map provided for coverage problem areas.

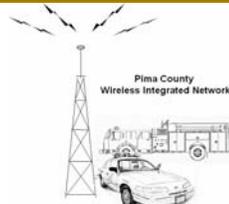
\*\* We are on the same frequency as Arizona State University's maintenance dept. Occasionally we receive their transmissions. Also we have periodic episodes of loud bursts of static. We have been unable to track down the cause.

\*\*\*We contract with Rural/Metro Fire Dept. for dispatching services. If they are extremely busy with their own Dept.'s calls, we are sometimes ignored.

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
<b>Mobiles</b>	<b>2</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>Portables</b>	<b>0*</b>	<b>4</b>	<b>10</b>	<b>5</b>
<b>Control Stations</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Paging units</b>	<b>15**</b>			
<b>Other Devices</b>				



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

\*Our current number of portables should be sufficient for the next 5 yrs. At that point we will have enough on duty manpower to handle our call load. Portables that are now carried by off duty firefighters can be utilized by on duty crews. Pagers will enable us to call up additional off duty personnel if needed.

\*\*This will give us a total of 26 pagers, which should cover our needs into the future. Our increases in on duty manpower will reduce the need to have every off duty person carry a pager.

Thank you for your assistance.

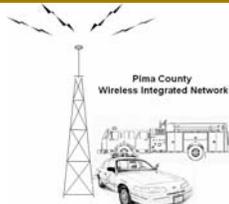
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** Corona de Tucon Fire Dept.

**Contact Name:** Doug Roth

**Position:** Asst. Chief

**Phone:** 520-762-5007

**Email:** droth@coronafire.org

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

#### I: CURRENT SITUATION

Mobile data equipment do you currently have 11 digital pagers

Age: 3-5 yrs Condition: good Adequate: yes

Mobile data functions that you currently have and use:

Computer Aided Dispatch: \_\_\_\_\_ Name of CAD system: \_\_\_\_\_

Access to Records Management: \_\_\_\_\_ Name of RMS system: \_\_\_\_\_

Records functions available: \_\_\_\_\_

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_\_

Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging: Car to car: \_\_\_\_\_ Car to dispatch: \_\_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_\_ State: \_\_\_\_\_ National : \_\_\_\_\_



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

n/a  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

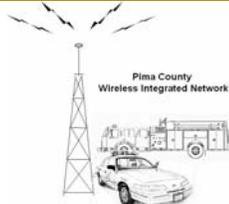
Our current call load doesn't yet justify mobile data equipment. Over the long term, however, we would desire the following capabilities:

Functions: CAD dispatch

Geographical Areas: Our fire district and surrounding response area ( see map provided)

Information Sources: Building plans, water supply schematics (hydrants/mains), databases on hazardous materials.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): Arch Paging

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

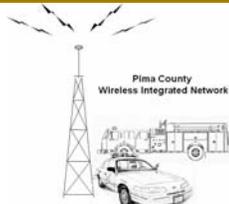
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	n/a	n/a	10	5	5
Wireless Handhelds (PDA's)					
AVL equipped					
Digital Pagers	11	n/a	15	0	0
Tone Voice Pagers					
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day <sup>2</sup>
CAD Dispatch	2
Query (license checks, vehicle registrations, wanted persons, property checks)	
Car-to-car or car-to-dispatch message	
Status updates	4





#### 4. Computer Systems Checklist – Fire & EMS Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Fire and EMS Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Fire and EMS Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

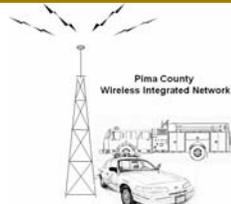
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

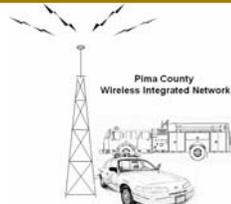


Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

**Fire and EMS Department Checklist**

- 1) Department Name Corona de Tucson Fire Dept.
- 2) Contact Name Doug Roth
- 3) Contact Telephone Number 520-762-5007
- 4) Primary Response Area Corona de Tucson, unincorporated areas of Pima County SE of Tucson.  
\_\_\_\_\_
- 5) Number of Personnel  
Current 16 5 Year Growth 24
- 6) Number of Fire Trucks and/or Engines  
Current 5 5 Year Growth 7
- 7) Number of Rescue and/or EMS response vehicles  
Current 2 5 Year Growth 2
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
Description Chief's car  
Current 1 5 Year Growth 1  
Description Utility truck  
Current 0 5 Year Growth 1



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

Description \_\_\_\_\_

Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_

9) Number of Fire or EMS stations

Current 1 5 Year Growth 2

10) Number of Fire and/or Response Zones

Current 1 5 Year Growth 1

11) Number of Fire runs per year

Current 75 5 Year Growth 150

12) Number of EMS responses per year

Current 457 5 Year Growth 900

13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.)

Current 253 5 Year Growth 500

14) Number of calls (included above) that are out of your District/Jurisdiction.

Current 487 5 Year Growth 950

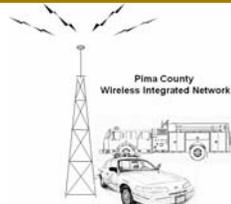
15) Number of calls (included above) that are out of Pima County.

Current 10 5 Year Growth 20

16) Number of calls (included above ) that are out of Arizona.

Current 5 5 Year Growth 10

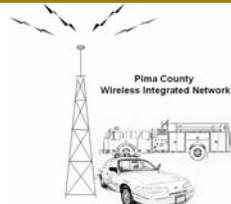
17) Number of HAZMAT pre-plans



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

- Current 5 5 Year Growth 10
- 18) Number of structure and location pre-plans
- Current 9 5 Year Growth 18
- 19) Number of Move-up Plans
- Current 0 5 Year Growth 1
- 20) Number of fire hydrants
- Current 252 5 Year Growth 800
- 21) Number of Mobile Data terminals
- Current 0 5 Year Growth 10
- 22) Number of Station Computers or others that would log-on to the network
- Current 3 5 Year Growth 6
- 23) Number of personnel that would require an individual log-on password
- Current 16 5 Year Growth 24



**Provisions of NFPA 1221**  
**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

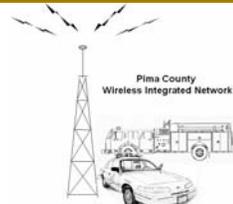
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

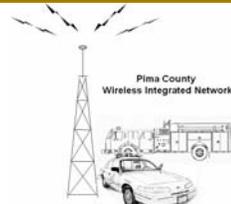
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA  
22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331,  
Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

- Fire Rescue Frequency Bands
- List of types of radio equipment, tower locations, radio stations licensees and map, and number of calls by day of week.

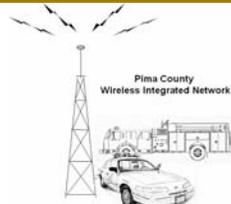


TABLE 2.1.2A Existing Interoperability

Fire Agencies		Police and Emergency Services Agencies		Federal Agencies		State
Agency Types	Corona de Tucson Fire District	Agency Types	Corona de Tucson Fire District	Agency Types	Corona de Tucson Fire District	
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives	
	Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection	
	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration	
	Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security	
	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation	
	Elephant Head Vol. FD		Pima County Sheriff's Dept.	X	Immigration and Customs Enforcement	
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service	
	Green Valley Fire District		Sahuarita PD		Bureau of Land Management	
	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife	
	Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service	
	Northwest Fire District		Tucson Airport Authority PD		U.S. Marshals Service	
	Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety	
	Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish	
	Rincon Valley Fire District					
	Rural Metro Fire/Southwest Ambulance					
X	South Tucson FD					
	Three Points FD					
	Tohono O' odham FD					
	Tucson Airport Authority FD					
	Tucson FD					
	Ajo Ambulance					
	Why Fire District					

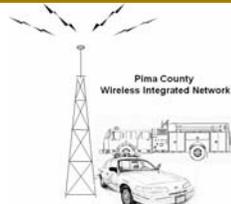
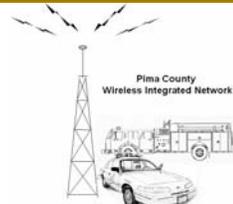


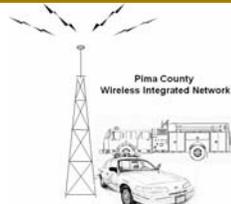
TABLE 2.1.2B Future Interoperability

Agency Types	Fire Agencies	Police and Emergency Services Agencies	Federal Agencies	Agencies
Corona de Tucson Fire District	Ajo/Gibson Vol. FD	Marana PD	Bureau of Alcohol, Tobacco, Firearms & Explosives	
	Arivaca Vol. FD	Oro Valley PD	Customs and Border Protection	
	Avra Valley Fire District	Pascua Yaqui PD	Drug Enforcement Administration	
	Corona de Tucson Fire District	Pima College Dept. of Public Safety	Emergency Man. & Homeland Security	
	Drexel Heights Fire District	Pima County OEM & Homeland Security	Federal Bureau of Investigation	
X	Elephant Head Vol. FD	X Pima County Sheriff's Dept.	Immigration and Customs Enforcement	
	Golder Ranch Fire District	Pima County Sheriff's Dept. - Ajo	National Park Service	
	Green Valley Fire District	Sahuarita PD	Bureau of Land Management	
	Helmet Peak Fire District	South Tucson PD	U.S. Fish & Wildlife	
	Mt. Lemmon Fire District	Tohono O'odham Tribal Police	U.S. Forest Service	
	Northwest Fire District	Tucson Airport Authority	U.S. Marshals Service	
	Pascua Pueblo FD	Tucson PD	Arizona Dept. of Public Safety	X
	Picture Rocks Fire District	University of Arizona Police	Arizona Game and Fish	
	Rincon Valley Fire District			
X	Rural Metro Southwest Ambulance			
X	South Tucson FD			
	Three Points FD			
	Tohono O'odham FD			
	Tucson Airport Authority FD			
	Tucson FD			
	Ajo Ambulance			
	Why Fire District			



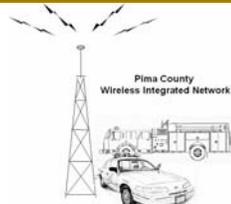
**TABLE 2.1.2C**  
**Corona de Tucson Fire District**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	5.0	
2	Improved Voice Radio Coverage – Central County	0.0	
3	Improved Voice Radio Coverage – Western County	0.0	
4	In-building Coverage	5.0	
5	Minimize Local Interference	5.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	4.0	
7	On-scene Fire Channels	5.0	
8	Monitored Firegrounds	3.0	
9	Emergency Alerting	5.0	
10	Workgroup Oriented Operation	1.0	
11	Voice Security	1.0	
12	Operational Boundary Transparency	3.0	
13	One System Serves All Agencies	4.0	
14	Interoperability through Dispatch	4.0	
15	Interoperability with Adjacent Counties	4.0	
16	Interoperability with State Agencies	3.0	
17	Interoperability with Federal Agencies	3.0	
18	Person Location	4.0	
19	System Control	3.0	
20	Recorded Operations	2.0	
21	Simplified User Operations	3.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	3.0	
23	Dispatch Capacity	3.0	
24	Dispatch Coverage	4.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	3.0	
26	Cross CAD Interconnection	3.0	
27	Mobile Data Criticality	3.0	
28	Vehicle Location	4.0	
29	EMS Telemetry	4.0	
30	High-Speed Broadband Service	2.0	
31	Mobile Applications	3.0	
32	Advanced Mobile Applications	3.0	
33	Access County Information	3.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	3.0	
35	Fire Station Alerting	2.0	
36	Paging over Cellular	3.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	4.0	
38	Owner-Controlled Backbone	2.0	
39	Microwave Connectivity	3.0	
40	Microwave Additional Capacity	2.0	
41	Regional Connectivity	3.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	3.0	
47	Centralized Maintenance	2.0	



**TABLE 2.1.2C**  
**Corona de Tucson Fire District**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	2.0	
49	Commonality of Equipment	3.0	
50	Multiple Sources	0.0	
51	Phased Implementation	2.0	
52	Tiered Subscriber Cost	2.0	
<b>Ranking Scale:</b> 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



### 2.1.3 Drexel Heights Fire District

#### A. Current Environment

##### 1. Operational

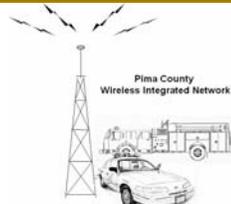
There are 4 Fire Stations and 1 Dispatch center. Locations include: 5030 South Camino Verde (dispatch), 5960 South Cardinal (is being torn down), 6340 South Mark, 3255 South Kinney, and 6950 South Beehive. The stations are staffed with 4 to 6 personnel at all times. There are 40 Mobiles and 40 Portables assigned to the trucks.

The Fire Department Communications Center is located at 5030 S. Camino Verde in Tucson. The Communications Center receives approximately 1255 fire calls and 4571 EMS calls per year. The center processes about 6000 total calls a year. Dispatch sends tone, preset through CAD. The station acknowledges the call, and vehicles arrive on scene and notify status to dispatch. The Incident Commander takes control of the scene and dispatch monitors the call. Firefighters communicate on the fire ground channel. A typical fire response involves 3 engines, 3 medical personnel, 1 chief, 1 support person, and 1 rescue vehicle.

The Communications Center provides fire and rescue dispatch support for the following Fire Districts:

Green Vally Fire District: Pima Mine road to the North, Exit K-52 on I-19 to the South, Old Nogales Hwy to the east and Helmet Peak Volunteer Fire to the west.

Tohono O'Odham Indian reservation, San Xavier District: Nogales Highway to the east Pima Mine Road to the south, Drexel Heitghts Fire District to the north and US-286 to the West.



Rincon Valley Fire District: South is I-10, west is Colossal Cave road, northern boundary is Old Spanish Trail East boundary is Marsh Station Road.

Mt Lemmon Fire District: Village of Summerhaven and Mt. Lemmon Hwy

Arivaca Volunteer Fire District: MP 25 on US-286 on the North, Amado Junction on the East US-Mexico border on the South Sasabe Hwy on the West

2. Functional

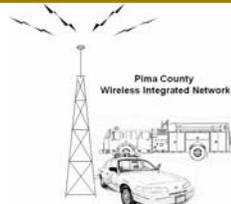
Drexel Heights Fire Department cannot communicate directly with law enforcement. Fire communicates in the UHF band while Tucson Police talks on the VHF band. Mobile radio coverage exceeds the overall district limits and fair coverage is experienced all over metropolitan Tucson, except Drexel Heights has in-building coverage problems in St. Mary's Hospital.

Drexel Heights Fire District covers a 91 square mile area. The boundaries include Tucson city limits to the east, Tucson Mountain Park to the north, the Tohono O'Odham Indian Reservation to the south, and Three Points Fire District to the west.

3. Technical

The primary tower site is located on 6950 Beehive in Tucson. Drexel Heights Fire Department has four stations with UHF and VHF channels. They have two repeated channels and two simplex channels.

The fire department uses a single transmitter, and three receiver IP Mobilenet Mobile data system that operates in 800 MHz frequency band.



It provides Automatic Vehicle Locator (AVL) capabilities and provides access to TPD/ TFD CAD (GEO-911)/ Records Management (Firehouse). There are 12 apparatus equipped with MDC's.

Dispatch utilizes the main UHF repeater at 6950 Beehive, and a UHF Fire Ground channel (simplex). The UHF EMS channels, Med 1-10 are utilized for medical transport operations, and access to the Tucson MTN Tri-band repeater is available for interoperability purposes.

Drexel Heights uses GEO 911 CAD (the same as Marana Police Department) and has a need for mobile data. There are four ambulances that transport to St. Mary's, Kino, St. Joseph, El Dorado, and Tucson Medical Center, Tucson Heart, University Medical Center, and Northwest hospitals. The UHF Med channels are used to support these operations.

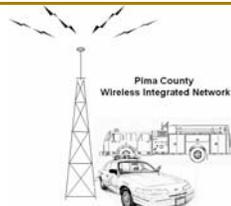
#### 4. Interoperability

TABLE 2.1.3A shows the existing direct interoperability capabilities with other agencies for the department. All vehicles have cross-band VHF/ UHF capabilities

### B. Positive Attributes of Current Environment

#### 1. Operational

The Fire Departments like simple reliable portables that can be operated by feel, a safety position (locked) on radios, less rubber and plastic parts, and battery re-conditioners. They generally do not buy intrinsically safe models.



2. Functional

Drexel Heights Fire Department has good voice and mobile data service throughout the service district. Wireless 2.4 and 5.9 GHz 802.11 hotspots are used at fire stations to access the records management system.

The radio coverage for the Drexel Heights Fire District is excellent. They have portable coverage throughout the whole district as well as into the Tucson Mountains.

3. Technical

They plan on using the GEO Mobile module over one channel of the IP MobileNet being put in by the City of Tucson. Their functionality goals include AVL and access to GIS information. Rincon Fire Department is also going with IP Mobilenet.

C. Desired Attributes of Current and Future Environment

1. Operational

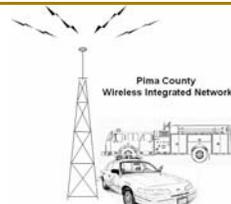
Drexel Heights Fire Department needs a way to directly communicate with law enforcement when needed or at authorized command levels.

2. Functional

Drexel Heights Fire Department would like to see UHF and VHF frequencies realigned for less interference. They would like to monitor the simplex frequencies.

3. Technical

Drexel Heights are open to convenient ways to radio monitor firefighter vital signs.



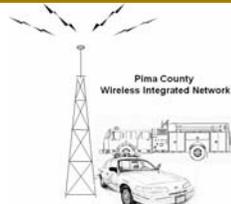
They would like a small short range intercom-type function. They would like a wireless link from the accessories to the radio on the belt.

4. Interoperability Matrix

TABLE 2.1.3B shows the future direct interoperability requirement with other agencies for the department.

5. Attributes Matrix

From inputs received during the PCWIN interview process, CTA developed a list of attributes for voice radio and mobile data communications. Drexel Heights Fire District was invited to rank these attributes according to importance for their importance to their operation. TABLE 2.1.3C lists the attributes along with your ranking.



D. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Drexel Heights Fire Department

**File Name:** - Drexel Heights Fire Department Interview Record Final.doc

**Date of Interview:** - February 24, 2006

**Location of Interview:** - Pima County Sheriff Department

**Persons Interviewed:** - Steve Campbell, Battalion Chief  
(520) 883 - 4341

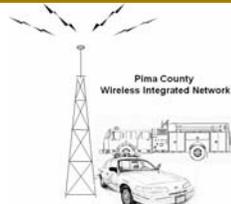
Gary Bynum, Assistant Chief  
(520) 883 -4190

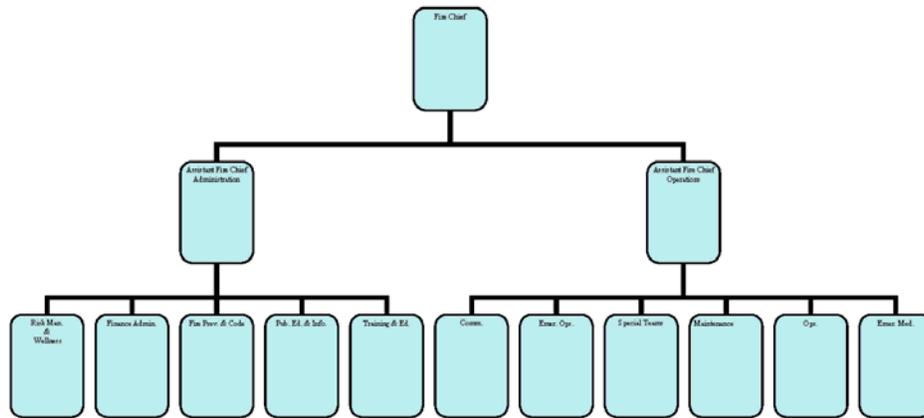
**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Drexel Heights Fire Department is located to the west of city of Tucson. Its department boundaries are surrounded by Saguaro National Park (West).
2. The department reports to the Governing Board. The department structure on next page.





**Present Situation**

1. The Fire Department Communications Center is located at 5030 S. Camino Verde in Tucson. The primary tower site is located on 6950 Beehive in Tucson. The repeater transmits at 453.150. Most radio communications is through the UHF frequency band. License information has been provided. The Drexel Heights Fire District boundaries include Tucson city limits to the east, Tucson Mountain Park to the north, the Tohono O'odham Indian Reservation to the south, and Three Points Fire District to the west.
2. The Communications Center provides fire and rescue dispatch support for the following Fire Districts:

Green Vally Fire District: Pima Mine road to the North, Exit K-52 on I-19 to the South, Old Nogales Hwy to the east and Helmet Peak Volunteer Fire to the west.

Tohono O'Odham Indian reservation, San Xavier District: Nogales Highway to the east Pima Mine Road to the south, Drexel Heitghts Fire District to the north and US-286 to the West.

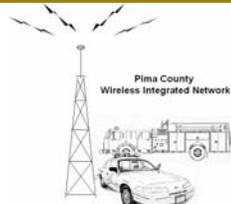
Rincon Valley Fire District: South is I-10, west is Colossal Cave road, northern boundry is Old Spanish Trail East boundry is Marsh Station Road.



Mt Lemmon Fire Distrcit: Village of Summerhaven and Mt. Lemmon Hwy.

Arivaca Volunteer Fire District: MP 25 on US-286 on the North, Amado Junction on the East US-Mexico border on the South Sassabe Hwy on the West

3. Drexel Heights Fire Department has good voice and mobile data service throughout the service district. The data transfer for stations utilize wireless 2.4 and 5.9 MHz 802.11 hotspots to access the records management system.
4. The radio coverage for the Drexel Heights Fire District is excellent. They have portable coverage throughout the whole district as well as into Tucson Mountain, located to the Northwest of the district.
5. The Communications Center receives approximately 1255 fire calls and 4571 EMS calls per year. Dispatch sends tone, preset through CAD, the station acknowledges the call, and vehicles arrive on scene and notify status to dispatch. The Incident Commander takes control of the scene and dispatch monitors the call. Firefighters communicate on the fire ground channel.
6. Ambulance transports to all hospitals located in metro Tucson and with the exception of St. Mary's are able to maintain contact with units at the hospitals. Other hospitals include Kino, St Joseph, El Dorado, Tucson Med Center, Henry, and UMC NW Hospital.
7. There are 4 Fire Stations and 1 Dispatch center - locations include: 5030 South Camino Verde (dispatch), 5960 South Cardinal (is being torn down), 6340 South Mark, 3255 South Kinney, and 6950 South Beehive. The stations are staffed with 4 to 6 personnel. – 24/7.
8. There are 40 Mobiles and 40 Portables assigned to the trucks along with Zetron Station Packs. All vehicles have cross-band VHF/ UHF capabilities.
9. There are 4 Ambulances that transport to these Hospitals: St. Mary's, Kino, St. Joseph, El Dorado, and Tucson Medical Center, Tucson Heart, University Medical Center, and Northwest.
10. The department operates over 91 square miles utilizing simplex operation.



11. Dispatch utilizes the main UHF repeater (6950 Behive), a UHF Fire Ground channel (simplex), UHF EMS channels – Med 1-10, and has access to the Tucson MTN Tri-band repeater.
12. A typical fire response includes 3 engines, 3 medic, 1 chief and 1 support, and 1 rescue.
13. The fire department uses a 1 tx, 3 rx IP Mobilenet Mobile data system that operates in 800 MHz frequency band. It provides Automatic Vehicle Locator (AVL) capabilities and provides access to TPD/ TFD CAD (GEO-911)/ Records Management (Firehouse). There are 12 apparatus equipped with MDC's.

**Present Problems**

1. Drexel Heights Fire Department cannot communicate directly with law enforcement. They operate on different frequencies.
2. Fair coverage all over metropolitan Tucson except Drexel Heights has in-building coverage problems in St. Mary's Hospital.

**Future Requirements**

1. Drexel Heights Fire Department needs better data links for fax information.
2. CAD interface with AVL and mapping. City wide for Ambulance transports.

The draft of this record was sent to Gary Bynum on March 28, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:

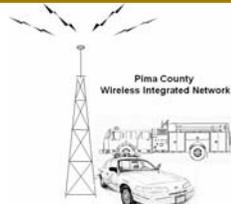
Gary Bynum  
Assistant Chief  
Drexel Heights Fire District  
5030 S. Camino Verde  
Tucson, AZ 85735

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CTA Communications, Inc.

4

Lynchburg, VA



**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Rincon Valley Fire Department  
Mt. Lemmon Fire Department  
Green Valley Fire Department  
Drexel Heights Fire Department

**File Name:** - 030306 County Fire Department 1 Final doc.

**Date of Interview:** - March 03, 2006

**Location of Interview:** - Pima County Sheriff Department

**Persons Interviewed:** - Dennis Rankin, Captain, Mt. Lemmon FD  
Ken Shultz, Ops Captain, Green Valley FD  
Lee Buckley, Asst. Chief, Rincon Valley FD  
Steven Campbell, Bat, Chief, Drexel Heights FD

**CTA Interviewer:** - David Anderson, Senior Systems Engineer  
Roscoe Mitchell, Communications Specialist

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Mt. Lemmon Fire Department covers a 12.5 square miles area.
2. Drexel Heights Fire Department covers a 91 square miles area.

**Present Situation**

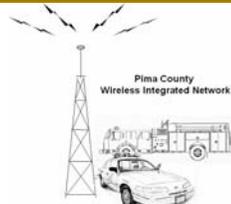
1. Rincon Valley Fire Department has two stations moving in June and building a third in the next two years. They have two UHF channels, one is repeated and one is simplex. They have a 65 foot monopole at the first station. Their call volume is up 57%, 1000 call volume a year with 85% to EMS and 15% to fire.

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CTA Communications, Inc.

1

Lynchburg, VA



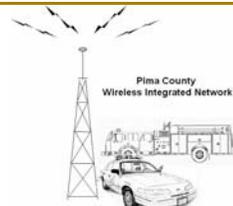
2. Mt. Lemmon Fire Department has two prime sites at Mt. Lemmon and Mt. Bigelow and one repeater at Loma Linda Tanks. They have three UHF simplex frequencies. They only do EMS calls and no transport of patients. They receive 300 calls a year with 80% EMS and 3% Fire.
3. Green Valley Fire Department has four Fire and EMS stations, but Southwest Ambulance does the transporting of patients to hospitals. They are dispatched by Drexel Heights, but switching to Rural Metro in July. They have two repeated frequencies and one simplex; La Canada Fire Station and Elephant Head. Record Management System is Emergency Reporting and mapping is a system from Mapping Solutions. Cox Cable is looking to use two stations as wireless points.
4. Drexel Heights Fire Department has four stations with UHF and VHF channels. They have two repeated channels and two simplex channels. The repeater is located at Beehive Peak. They receive about 6000 calls a year.
5. Preferred portable radios include Kenwood, Bendix King, and Icom.
6. Drexel Heights uses GEO 911 CAD (the same as Marana) and has a need for mobile data. They plan on using the GEO Mobile module over one channel of the IP MobileNet being put in by the City of Tucson. Their functionality goals include AVL and access to GIS information. Rincon FD is also going with IP Mobilenet.
7. Green Valley FD is installing in-vehicle mapping and AVL. Laptops in the truck will run "Mapping Solutions" software. Green Valley plans to equip with Wi-Fi since their area is partly within the Canamex corridor. Cox Communication's network will be involved with expanding the Canamex project.

**Present Problems**

1. Rincon Valley has coverage problems east of I-10 in the valley.

**Future Requirements**

1. Green Valley Fire Department is planning to build 3 Stations in the next 5 years.
2. Drexel Heights Fire Department would like to see UHF and VHF frequencies realigned for less interference. They would like to monitor the simplex frequencies.



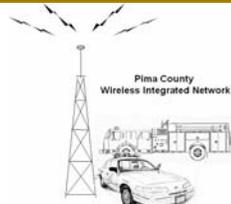
3. They like simple reliable portables that can be operated by feel, a safety position (locked) on radios, less rubber and plastic parts, and battery reconditioners. They generally do not buy intrinsically safe models.
4. These departments are open to convenient ways to radio monitor firefighter vital signs. They would like a small short range intercom-type function. They would like a wireless link from the accessories to the radio on the belt.

The draft of this record was sent to Captain Paul Wilson on March 31, 2006.

Corrected draft was returned to CTA Communications on April 5, 2006.

Interviewee Name & Address:  
Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Drexel Heights Fire District

Contact Name: Gary Bynum

Position: Assistant Chief

Phone: 520-883-4341

Email: Gbynum@drexelfire.net

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
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	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	
<b>Mobiles</b>	40					
<b>Portables</b>	40					
<b>Control Stations</b>	8					
<b>Paging units</b>	2					
<b>Other Devices</b>	4					

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

Radios are assigned to trucks not shift. So are portables. Radis are split evenly between VHF and UHF.

Other devices are Zetron Station packs




c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	2	YES
Water Tender	1	Yes
Pumper/ Engine	6	Yes
Ladder Truck		
Ambulance	6	Yes
Patrol Vehicles		
Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars	9	Yes
Other (Please Describe)	3	Yes

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

**Clarifications:**

Others references special vehicles not discribed above like Hazmat or TRT.

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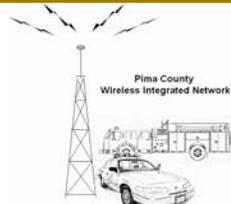
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Pima County, Arizona  
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d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
5030 S. Camino Verde	2	Station Pack
5960 S. Cardinal	1	Station Pack
6340 S. Mark	1	Station Pack
3255 S. Kinney	1	Station Pack
6950 S. Beehive	3	Dispatch

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

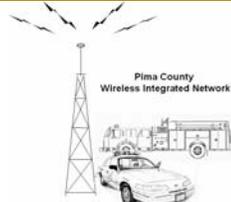
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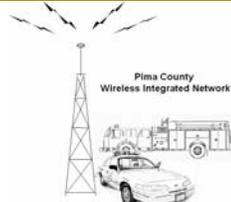


**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Fore our district we have only one coverage at St. Marys Hospital					3	

- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.





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**Clarifications:**


Thank you for your assistance.

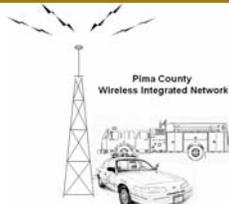
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Drexel Heights Fire District

Contact Name: Gary Bynum

Position: Assistant Chief

Phone: 520-883-4341

Email: Gbynum@drexelfire.net

INSTRUCTIONS: Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

#### I: CURRENT SITUATION

Mobile data equipment do you currently have IP Mobilnet

Age: Now Condition: Excellent Adequate: UKN

Mobile data functions that you currently have and use:

Computer Aided Dispatch: X Name of CAD system: Geo-911

Access to Records Management: Yes Name of RMS system: Fire House

Records functions available: Yes

Field Reporting: No Automatic Vehicle Location (AVL): Yes

Email: Yes Outlook or web-based? Web based

Text Messaging: Car to car: yes Car to dispatch: yes

Query (Person, Vehicle, Property, etc) Local: Na State: Na National : Na



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

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Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

Still bringing system on line, still evaluating software  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

Unknown  
CAD interface with AVL and mapping. City wide for Ambulance transports  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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\_\_\_\_\_  
\_\_\_\_\_



**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): 1 channel VHF

Commercial Service (Verizon, etc) : No

Wi-Fi : \_\_\_\_\_

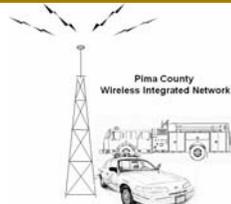
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	9	4	4	2	2
Wireless Handhelds (PDA's)	1		8	1	1
AVL equipped	9		2	2	2
Digital Pagers	100		25	25	25
Tone Voice Pagers					
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour <del>X</del> or per day
CAD Dispatch	240
Query (license checks, vehicle registrations, wanted persons, property checks)	
Car-to-car or car-to-dispatch message	100
Status updates	240
Emails	50





#### 4. Computer Systems Checklist – Fire & EMS Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Fire and EMS Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Fire and EMS Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity, as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

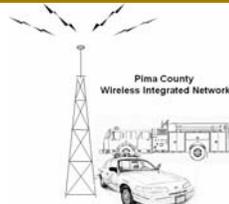
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

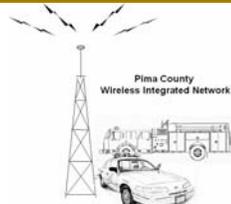


Pima County, Arizona  
Wireless Integrated Network (PCWIN)

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**Fire and EMS Department Checklist**

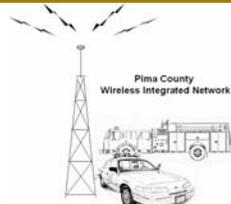
- 1) Department Name Drexel Heights Fire District
- 2) Contact Name Steve Campbell
- 3) Contact Telephone Number 520-908-1099
- 4) Primary Response Area Southwest Tucson  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 100 5 Year Growth 130
- 6) Number of Fire Trucks and/or Engines  
Current 6 5 Year Growth 8
- 7) Number of Rescue and/or EMS response vehicles  
Current 6 5 Year Growth 9
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
Description Hazmat  
Current 1 5 Year Growth 1  
Description Rescue  
Current 1 5 Year Growth 1



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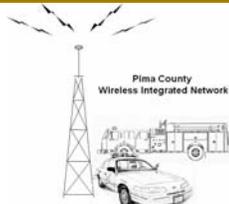
- | Description   | Command                               |
|---|---------------------------------------|
| Current   | <u>4</u> 5 Year Growth <u>4</u>       |
| 9) Number of Fire or EMS stations   |                                       |
| Current   | <u>4</u> 5 Year Growth <u>5</u>       |
| 10) Number of Fire and/or Response Zones  |                                       |
| Current   | <u>4</u> 5 Year Growth <u>5</u>       |
| 11) Number of Fire runs per year  |                                       |
| Current   | <u>114</u> 5 Year Growth <u>150</u>   |
| 12) Number of EMS responses per year  |                                       |
| Current   | <u>5037</u> 5 Year Growth <u>7000</u> |
| 13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.) |                                       |
| Current   | <u>1053</u> 5 Year Growth <u>1500</u> |
| 14) Number of calls (included above) that are out of your District/Jurisdiction.      |                                       |
| Current   | <u>350</u> 5 Year Growth <u>500</u>   |
| 15) Number of calls (included above) that are out of Pima County.                     |                                       |
| Current   | <u>50</u> 5 Year Growth <u>75</u>     |
| 16) Number of calls (included above ) that are out of Arizona.                        |                                       |
| Current   | <u>5</u> 5 Year Growth <u>10</u>      |
| 17) Number of HAZMAT pre-plans  |                                       |



Pima County, Arizona  
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March 14, 2006

- Current 25 5 Year Growth 30
- 18) Number of structure and location pre-plans
- Current 35 5 Year Growth 50
- 19) Number of Move-up Plans
- Current 20 5 Year Growth 25
- 20) Number of fire hydrants
- Current 1000 5 Year Growth 1500
- 21) Number of Mobile Data terminals
- Current 12 5 Year Growth 18
- 22) Number of Station Computers or others that would log-on to the network
- Current 17 5 Year Growth 25
- 23) Number of personnel that would require an individual log-on password
- Current 100 5 Year Growth 130



**Provisions of NFPA 1221**  
**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

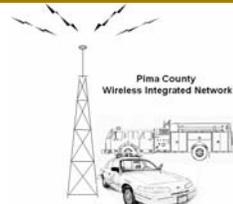
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

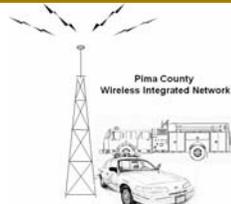
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



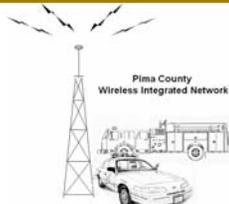
**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA  
22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331,  
Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

Drexel Height Fire Department provided CTA with the following documentation items:

- Frequency Bands
- Antennas
- Frequencies
- Organizational Chart
- Radio station licenses
- Fire Rescue Dispatch And Channels

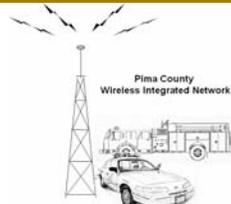


TABLE 2.1.3A Existing Interoperability

Agency Types		Agency Types		Agency Types	
Drexel Heights Fire District		Drexel Heights Fire District		Drexel Heights Fire District	
Ajo/Gibson Vol. FD	Fire Agencies		Police and Emergency Services Agencies	Bureau of Alcohol, Tobacco, Firearms & Explosives	Federal Agencies
Arivaca Vol. FD		Marana PD		Customs and Border Protection	
Avra Valley Fire District		Oro Valley PD		Drug Enforcement Administration	
Corona de Tucson Fire District		Pascua Yaqui PD		Emergency Man. & Homeland Security	
Drexel Heights Fire District		Pima College Dept. of Public Safety		Federal Bureau of Investigation	
Elephant Head Vol. FD		Pima County OEM & Homeland Security		Immigration and Customs Enforcement	
Golder Ranch Fire District				National Park Service	
Green Valley Fire District				Bureau of Land Management	
Helmet Peak Fire District		X Pima County Sheriff's Dept.		U.S. Fish & Wildlife	
Mt. Lemmon Fire District		Pima County Sheriff's Dept. - Ajo		U.S. Forest Service	
Northwest Fire District		Sahuarita PD		U.S. Marshals Service	
Pascua Pueblo FD		South Tucson PD		Arizona Dept. of Public Safety	
Picture Rocks Fire District		Tohono O'odham Tribal Police		Arizona Game and Fish	
Rincon Valley Fire District		Tucson Airport Authority PD			
Rural Metro Fire/Southwest Ambulance		Tucson PD			
South Tucson FD		University of Arizona Police			
Three Points FD					
Tohono O' odham FD					
Tucson Airport Authority FD					
Tucson FD					
Ajo Ambulance					
Why Fire District					

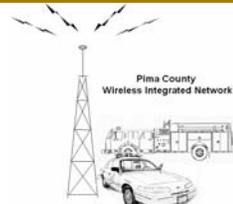
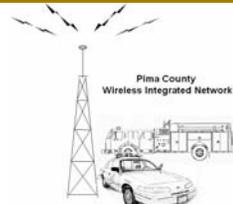


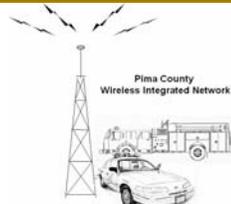
TABLE 2.1.3B Future Interoperability

Agency Types		Agency Types		Agency Types	
Drexel Heights Fire District		Drexel Heights Fire District		Drexel Heights Fire District	
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives
X	Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection
	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration
	Corona de Tucson Fire District	X	Pima College Dept. of Public Safety		Emergency Man. & Homeland Security
	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation
	Elephant Head Vol. FD		Pima County Sheriff's Dept.		Immigration and Customs Enforcement
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service
X	Green Valley Fire District		Sahuarita PD		Bureau of Land Management
X	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife
X	Mt. Lemmon Fire District	X	Tohono O'odham Tribal Police		U.S. Forest Service
	Northwest Fire District		Tucson Airport Authority		U.S. Marshals Service
X	Pascua Pueblo FD		Tucson PD	X	Arizona Dept. of Public Safety
	Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish
X	Rincon Valley Fire District				
	Rural Metro Southwest Ambulance				
	South Tucson FD				
X	Three Points FD				
X	Tohono O'odham FD				
	Tucson Airport Authority FD				
X	Tucson FD				
	Ajo Ambulance				
	Why Fire District				



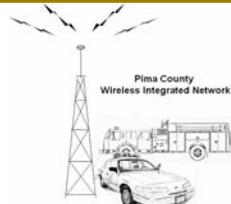
**TABLE 2.1.3C**  
**Drexel Heights Fire District**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	5.0	
2	Improved Voice Radio Coverage – Central County	4.0	
3	Improved Voice Radio Coverage – Western County	5.0	
4	In-building Coverage	4.0	
5	Minimize Local Interference	4.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	4.0	
7	On-scene Fire Channels	4.0	
8	Monitored Firegrounds	5.0	
9	Emergency Alerting	5.0	
10	Workgroup Oriented Operation	3.0	
11	Voice Security	2.0	
12	Operational Boundary Transparency	4.0	
13	One System Serves All Agencies	4.0	
14	Interoperability through Dispatch	5.0	
15	Interoperability with Adjacent Counties	3.0	
16	Interoperability with State Agencies	4.0	
17	Interoperability with Federal Agencies	3.0	
18	Person Location	3.0	
19	System Control	4.0	
20	Recorded Operations	5.0	
21	Simplified User Operations	4.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	4.0	
23	Dispatch Capacity	5.0	
24	Dispatch Coverage	5.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	3.0	
26	Cross CAD Interconnection	5.0	
27	Mobile Data Criticality	3.0	
28	Vehicle Location	5.0	
29	EMS Telemetry	4.0	
30	High-Speed Broadband Service	4.0	
31	Mobile Applications	4.0	
32	Advanced Mobile Applications	3.0	
33	Access County Information	1.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	3.0	
35	Fire Station Alerting	5.0	
36	Paging over Cellular	4.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	5.0	
38	Owner-Controlled Backbone	4.0	
39	Microwave Connectivity	4.0	
40	Microwave Additional Capacity	5.0	
41	Regional Connectivity	4.0	
<b>Reliability and Availability</b>			
42	Survivability	4.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	4.0	
47	Centralized Maintenance	4.0	



**TABLE 2.1.3C**  
**Drexel Heights Fire District**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	3.0	
49	Commonality of Equipment	4.0	
50	Multiple Sources	4.0	
51	Phased Implementation	3.0	
52	Tiered Subscriber Cost	4.0	
<b>Ranking Scale</b>			
0 - Attribute is NOT IMPORTANT to the user.			
1 - Attribute is MINIMALLY IMPORTANT to the user.			
2 - Attribute is NICE TO HAVE, could enhance operations.			
3 - Attribute is USEFUL, will promote more efficient day to day operation.			
4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property.			
5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.1.4 Elephant Head Volunteer Fire Department

### A. Current Environment

#### 1. Operational

The fire department is located in Amada, AZ. There are seven apparatus to support operations. The Rural Metro /Southwest Ambulance Center provides dispatch service for the Elephant Head Volunteer Fire Department.

#### 2. Functional

The primary radio system is a conventional VHF repeater used for wide area coverage.

#### 3. Technical

The department has 5 mobiles that operate in the 800 MHz band and 4 mobiles that operate in VHF band. There are 11 VHF portables and 1 UHF portable. The department uses the VHF Elephant Head Peak repeater to support this operation. This is the same repeater that supports Green Valley Fire.

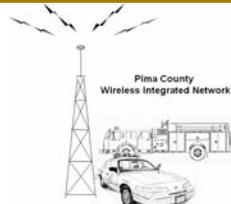
#### 4. Interoperability

TABLE 2.1.4A shows the existing direct interoperability capabilities with other agencies for the department. Elephant Head firefighters are equipped with VHF, UHF and 800 MHz radio equipment to support interoperability communications requirements.

### B. Positive Attributes of Current Environment

#### 1. Operational

#### 2. Functional



3. Technical

C. Desired Attributes of Current and Future Environment

1. Operational

The radio system should be expanded to improve communications.

2. Functional

A system upgrade should contribute to improving coverage performance especially in the south side. Expanding the geographical service area to support the department's growth is being planned.

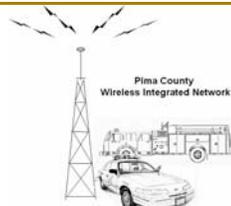
3. Technical

4. Interoperability Matrix

TABLE 2.1.4B shows the future direct interoperability capabilities with other agencies for the department. Radio Interoperability should include a network gateway to facilitate communications with agencies not currently accessible.

5. Attributes Matrix

Please refer to TABLE 2.1.4C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Rural Metro/Southwest Ambulance  
South Tucson Fire Department  
Corona de Tucson Fire Department  
Elephant Head Fire Department

**File Name:** - 030106 County Fire Department Final 1  
Interview Record.doc

**Date of Interview:** - March 01, 2006

**Location of Interview:** - Pima County Sheriff Department

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Rural Metro/Southwest Ambulance is responsible for 124 square miles and covers a majority of Pima County. Rural Metro/Southwest is located at 3759 North Commerce Drive, Tucson, in a 20,000 square foot building. The fleet maintenance operations reside at this location.
2. The Elephant Head Fire Department is staffed with volunteer firefighters.
3. Corona de Tucson Fire Department is responsible for approximately 30 square miles.

**Present Situation**

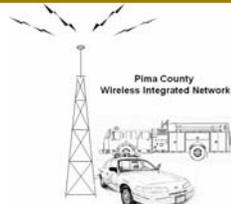
1. Elephant Head personnel currently have pagers and portables equipped with Motorola quick call. There are 30 firefighters on staff. The fire trucks are stationed at the firefighters homes. During an emergency fire call, 3-4 units will respond. Ambulances do not transport patients. The department has 7-8 apparatus.

---

CTA Communications, Inc.

1

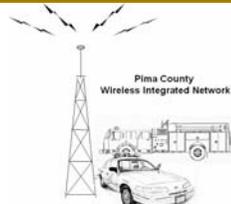
Lynchburg, VA



2. The Elephant Head Fire Department's primary radio transmitter site is located at Elephant Head Peak.
3. The Corona de Tucson Fire Department is currently upgrading one tower and building at their stations. The tower is a 120 foot self supporting tower located at 99 Thistle Avenue.
4. The Corona de Tucson Fire Department is dispatched through tone alerts to pagers and radios. Operations are 24 hours per day staffed with 5 people during day and 3 people during the night. The department has 8 trucks and 1 ambulance. The ambulance does not transport.
5. Corona de Tucson Fire Department utilizes two frequencies; both are used in simplex or talk around mode.
6. Rural Metro/ Southwest Ambulance currently have 150 vehicles, and 40 dispatchers that work two (2) 12 hour shifts with 8-10 to 10 dispatchers staffed per shift. There are plans to add 10 dispatchers over the next 2 years. They also utilize a helicopter service (Copter Line) that operates from St. Mary's Hospital.
7. Samuel Well and Graham area ambulances are dispatched at Rural Metro. They have 13 fire stations and 8 ambulance sites. Northwest Fire and Golder Ranch are dispatched from Tucson Fire.
8. Rural Metro / Southwest Ambulance radios are mobiles: TK730, TK830, TK2170, TK2180, TK790, and TK890; portables 272GE, 273GE, TK280, and TK380. Consoles for dispatch are Centracom Gold Elite. CAD is GEAC, text based CAD, and NFIR (national fire record management system).
9. Rural Metro has a 60 foot self supporting tower with 1 UHF yagi, 3 VHF vertical, 3 VHF yagi for Rural Metro Elephant Head repeater, South Tucson repeater, and Green Valley. Repeater at 32 North Stone is VHF 153.150 Simplex, 159.090 TX, 153.815 RX medical dispatch only, and 155.75 after dispatch use. Mt. Lemmon is backup for Southwest Tucson and prime for Pinal County.

**Present Problems**

1. Elephant Head Fire Department would like better radio coverage.



2. Corona de Tucson Fire Department has coverage problems down Sahuarita highway and can not talk to Med line on highway 10.

**Future Requirements**

1. All departments would like to have access to CAD records, mobile mapping, building mapping, and HazMat.
2. Rural Metro / Southwest Ambulance would like to have mobile data capabilities in the future.

**Additional Comments**

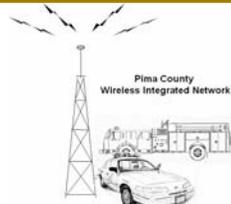
1. Survey forms were provided by the organizations at each of the sites.

The draft of this record was sent to Captain Paul Wilson on March 31, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:  
Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\030106 County Fire Department Final.doc



## 2. Radio Usage Form

4

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

Organization/Agency Name: ELEPHANT HEAD VOL. FIRE DEPT.

Contact Name: MADY BROW Position: CHIEF

Phone: 398-9706 Email: CAPTMB@aol.com

---

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

**I: RADIO UTILIZATION CURRENT SITUATION**

a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

*2nd*  
Contact person  
Betty Johnson 398-9757

---

Page 1 of 7

Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2		Shift 3	Shift 4
Mobiles	9					
Portables	12					
Control Stations	?					
Paging units	40					
Other Devices						

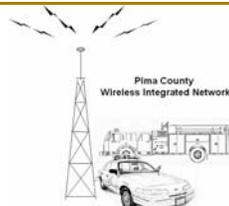
Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

Clarifications:

Mobiles 5 800 MHz, 4 UHF  
 Portables 11 800 MHz, 1 UHF

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	1	YES
Water Tender	2	YES
Pumper/ Engine	2	YES
Ladder Truck	-	-
Ambulance	1	YES
Patrol Vehicles	1	YES



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks	1	YES
Highway Maintenance		
Vans		
Buses		
Cars		
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
N/A		







Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.

**Clarifications:**

Portables do not hit dispatch in our area they do work on our channel on car to car off our repeater.

Mobiles loose dispatch towards ARIVACA we have to switch to their channel. We have alot of dead zones and alot of breakage coverage



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	4	2	2	?
Portables	10	5	?	?
Control Stations	2	1	?	?
Paging units	20	-	-	-
Other Devices				

**Clarifications:**

Mobiles - increase in equipment  
 Portables - increase in personal  
 Control Stations - increase in stations  
 Paging units - increase in personal

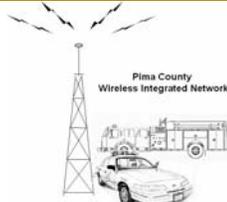
Thank you for your assistance.

Please hand this survey in during your interview or return to:

CTA Communications, Inc. Fax: (434) 239-9221  
 P.O. Box 4579 Phone: (434) 239-9200  
 Lynchburg, VA 24502-0579 PCWIN@ctacommunications.com

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\PCWIN Radio Usage Survey.DOC



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

Organization/Agency Name: EHVFD

Contact Name: MONTY DEW Position: CHIEF

Phone: 398-9706 Email: CAPTMB@aol.com

---

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have: 9

Age: 2-6 Condition: Fair to good Adequate?: NO

Mobile data functions that you currently have and use: Rural Metro has all this

Computer Aided Dispatch: \_\_\_\_\_ Name of CAD system: \_\_\_\_\_

Access to Records Management: \_\_\_\_\_ Name of RMS system: \_\_\_\_\_

Records functions available: \_\_\_\_\_

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_\_

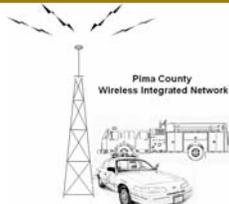
Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging: Car to car: \_\_\_\_\_ Car to dispatch: \_\_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_\_ State: \_\_\_\_\_ National : \_\_\_\_\_

---

 Page 1 of 4



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

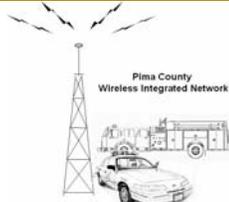
Problems or concerns with your current capabilities:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

\_\_\_\_\_  
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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	0	8	4	2	2
Wireless Handhelds (PDA's)	?				
AVL equipped	0	8			
Digital Pagers	40	10	20		
Tone Voice Pagers	0				
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	2
Query (license checks, vehicle registrations, wanted persons, property checks)	N/A
Car-to-car or car-to-dispatch message	6
Status updates	1





4. Computer Systems Checklist – Fire & EMS Departments

None.

5. Documentation Provided

- Fire Rescue Frequency Bands
- Number of Calls by day of week.

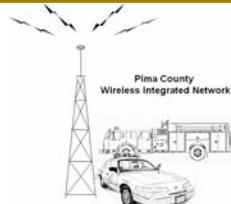
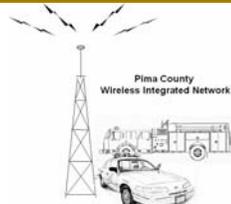


TABLE 2.1.4A Existing Interoperability

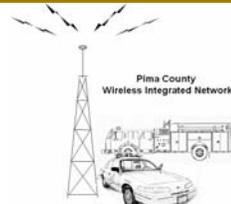
Agency Types Elephant Head Vol. FD	Agency Types Elephant Head Vol. FD	Agency Types Elephant Head Vol. FD
Ajo/Gibson Vol. FD		Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD		Customs and Border Protection
Avra Valley Fire District		Drug Enforcement Administration
Corona de Tucson Fire District		Emergency Man. & Homeland Security
Drexel Heights Fire District	Marana PD	Federal Bureau of Investigation
Elephant Head Vol. FD	Oro Valley PD	Immigration and Customs Enforcement
Golder Ranch Fire District	Pascua Yaqui PD	National Park Service
Green Valley Fire District	Pima College Dept. of Public Safety	Bureau of Land Management
Helmet Peak Fire District	Pima County OEM & Homeland Security	U.S. Fish & Wildlife
Mt. Lemmon Fire District	X Pima County Sheriff's Dept.	U.S. Forest Service
Northwest Fire District	Pima County Sheriff's Dept. - Ajo	U.S. Marshals Service
Pascua Pueblo FD	Sahuarita PD	Arizona Dept. of Public Safety
Picture Rocks Fire District	South Tucson PD	Arizona Game and Fish
Rincon Valley Fire District	Tohono O'odham Tribal Police	
Rural Metro Fire/Southwest	Tucson Airport Authority PD	
X Ambulance	Tucson PD	
South Tucson FD	University of Arizona Police	
Three Points FD		
Tohono O' odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		





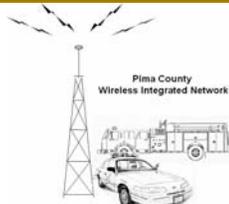
**TABLE 2.1.4C**  
**Elephant Head Volunteer Fire Department**

DESIGNATOR NO.	ATTRIBUTE	Elephant Head Vol. Fire Dept.	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County		
2	Improved Voice Radio Coverage – Central County		
3	Improved Voice Radio Coverage – Western County		
4	In-building Coverage		
5	Minimize Local Interference		
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity		
7	On-scene Fire Channels		
8	Monitored Firegrounds		
9	Emergency Alerting		
10	Workgroup Oriented Operation		
11	Voice Security		
12	Operational Boundary Transparency		
13	One System Serves All Agencies		
14	Interoperability through Dispatch		
15	Interoperability with Adjacent Counties		
16	Interoperability with State Agencies		
17	Interoperability with Federal Agencies		
18	Person Location		
19	System Control		
20	Recorded Operations		
21	Simplified User Operations		
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity		
23	Dispatch Capacity		
24	Dispatch Coverage		
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies		
26	Cross CAD Interconnection		
27	Mobile Data Criticality		
28	Vehicle Location		
29	EMS Telemetry		
30	High-Speed Broadband Service		
31	Mobile Applications		
32	Advanced Mobile Applications		
33	Access County Information		
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging		
35	Fire Station Alerting		
36	Paging over Cellular		
<b>Infrastructure Capabilities</b>			
37	Future Expansion		
38	Owner-Controlled Backbone		
39	Microwave Connectivity		
40	Microwave Additional Capacity		
41	Regional Connectivity		
<b>Reliability and Availability</b>			
42	Survivability		
43	Reliability/Failure Hierarchy		
44	Single Points of Failure		
45	Power Backup		
<b>Training and Maintenance</b>			
46	Staffing and Training		
47	Centralized Maintenance		
<b>Cost and Procurement</b>			
48	Competitive Procurement Process		
49	Commonality of Equipment		
50	Multiple Sources		
51	Phased Implementation		



**TABLE 2.1.4C**  
**Elephant Head Volunteer Fire Department**

DESIGNATOR NO.	ATTRIBUTE	Elephant Head Vol. Fire Dept.	COMMENTS
52	Tiered Subscriber Cost		
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.1.5 Green Valley Fire District

### A. Current Environment

#### 1. Operational

The Green Valley Fire Station has 22 personnel on staff. There are seven office personnel and fifteen Firefighters on duty per shift. There are twelve fire apparatus at the station. The Drexel Heights Communications Center provides fire and rescue dispatch support for the Green Valley Fire District.

Green Valley Fire Department has four Fire and EMS stations, but Southwest Ambulance does the transporting of patients to hospitals. They are currently dispatched by Drexel Heights, but are switching to Rural Metro dispatch in July 2006.

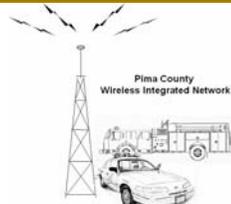
#### 2. Functional

The Green Vally Fire District includes the Pima Mine road to the North, Exit K-52 on I-19 to the South, Old Nogales Hwy to the east and Helmet Peak Volunteer Fire to the west.

The Record Management System for emergency reporting and mapping is a system from Cox Cable used at two stations a wireless point. The most significant radio problem today is coverage in the south end of service area.

#### 3. Technical

The Department utilizes VHF repeaters at La Canada Fire Station and Elephant Head. Channel 1 is designated Fireground, Channel 2 is the dispatch channel, and Channel 16 is a simplex Fireground channel.



The Department is equipped with 13 VHF mobiles, 12 UHF mobiles, 55 VHF portables, and 4 VHF Desktop control stations. The desktop control stations are located at 555 N. La Canada, 3005 S. Camino del sol, 210 E. Continental Rd., and 1691 Q Duval Commerce Court and are used for Station alerts from dispatch...

4. Interoperability

TABLE 2.1.5A shows the existing direct interoperability capabilities with other agencies for the department. While Green Valley is primarily equipped with VHF radio equipment, most vehicles also have a UHF radio for interoperability purposes in that band.

B. Positive Attributes of Current Environment

1. Operational

The radio system is conventional technology using repeaters for wide area coverage.

2. Functional

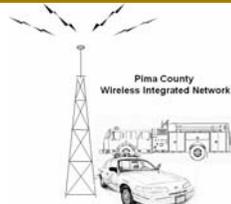
3. Technical

A mix of VHF and UHF radios are used to facilitate communications with various agencies.

C. Desired Attributes of Current and Future Environment

1. Operational

Green Valley Fire Department is planning to build 3 more stations in the next 5 years. This will require additional staff and radio, mobile data expansion requirements. Open to convenient ways to radio monitor firefighter vital signs.



2. Functional

A small short range intercom-type function is desirable. They would like a wireless link from the accessories to the radio on the belt. Green Valley requires laptops in all units for CAD dispatching, AVL, mapping, storage for fire pre-plans, photos, and personal safety. The thrust is for information sharing between units, and other departments and agencies. A system upgrade should contribute to improving coverage performance especially in the south side. Expanding the geographical service area to support the department's growth is being planned.

3. Technical

Green Valley Fire Department is installing in-vehicle mapping and AVL. Laptops in the truck will run "Mapping Solutions" software. Green Valley plans to equip with Wi-Fi since their area is partly within the Canamex corridor. Cox Communication's network will be involved with expanding the Canamex project.

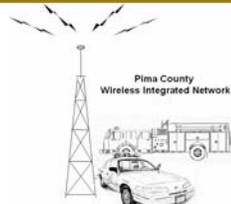
4. Interoperability Matrix

TABLE 2.1.5B shows the future direct interoperability capabilities with other agencies for the department. The Fire Department should have radio interoperability with the local Fire Departments and hospitals as well as the Tucson Police Department and the Pima County Sheriff's Office.

It is desirable to have common frequencies or gateway patches to facilitate interoperability with other agencies.

5. Attributes Matrix

Please refer to TABLE 2.1.5C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Rincon Valley Fire Department  
Mt. Lemmon Fire Department  
Green Valley Fire Department  
Drexel Heights Fire Department

**File Name:** - 030306 County Fire Department 1 Final doc.

**Date of Interview:** - March 03, 2006

**Location of Interview:** - Pima County Sheriff Department

**Persons Interviewed:** - Dennis Rankin, Captain, Mt. Lemmon FD  
Ken Shultz, Ops Captain, Green Valley FD  
Lee Buckley, Asst. Chief, Rincon Valley FD  
Steven Campbell, Bat, Chief, Drexel Heights FD

**CTA Interviewer:** - David Anderson, Senior Systems Engineer  
Roscoe Mitchell, Communications Specialist

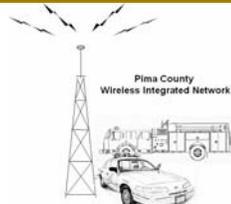
The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Mt. Lemmon Fire Department covers a 12.5 square miles area.
2. Drexel Heights Fire Department covers a 91 square miles area.

**Present Situation**

1. Rincon Valley Fire Department has two stations moving in June and building a third in the next two years. They have two UHF channels, one is repeated and one is simplex. They have a 65 foot monopole at the first station. Their call volume is up 57%, 1000 call volume a year with 85% to EMS and 15% to fire.



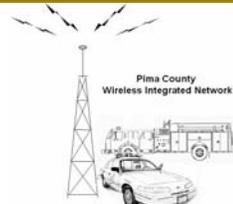
2. Mt. Lemmon Fire Department has two prime sites at Mt. Lemmon and Mt. Bigelow and one repeater at Loma Linda Tanks. They have three UHF simplex frequencies. They only do EMS calls and no transport of patients. They receive 300 calls a year with 80% EMS and 3% Fire.
3. Green Valley Fire Department has four Fire and EMS stations, but Southwest Ambulance does the transporting of patients to hospitals. They are dispatched by Drexel Heights, but switching to Rural Metro in July. They have two repeated frequencies and one simplex; La Canada Fire Station and Elephant Head. Record Management System is Emergency Reporting and mapping is a system from Mapping Solutions. Cox Cable is looking to use two stations as wireless points.
4. Drexel Heights Fire Department has four stations with UHF and VHF channels. They have two repeated channels and two simplex channels. The repeater is located at Beehive Peak. They receive about 6000 calls a year.
5. Preferred portable radios include Kenwood, Bendix King, and Icom.
6. Drexel Heights uses GEO 911 CAD (the same as Marana) and has a need for mobile data. They plan on using the GEO Mobile module over one channel of the IP MobileNet being put in by the City of Tucson. Their functionality goals include AVL and access to GIS information. Rincon FD is also going with IP Mobilenet.
7. Green Valley FD is installing in-vehicle mapping and AVL. Laptops in the truck will run "Mapping Solutions" software. Green Valley plans to equip with Wi-Fi since their area is partly within the Canamex corridor. Cox Communication's network will be involved with expanding the Canamex project.

**Present Problems**

1. Rincon Valley has coverage problems east of I-10 in the valley.

**Future Requirements**

1. Green Valley Fire Department is planning to build 3 Stations in the next 5 years.
2. Drexel Heights Fire Department would like to see UHF and VHF frequencies realigned for less interference. They would like to monitor the simplex frequencies.



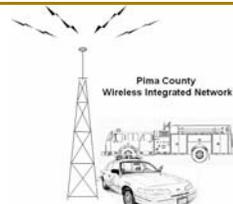
3. They like simple reliable portables that can be operated by feel, a safety position (locked) on radios, less rubber and plastic parts, and battery reconditioners. They generally do not buy intrinsically safe models.
4. These departments are open to convenient ways to radio monitor firefighter vital signs. They would like a small short range intercom-type function. They would like a wireless link from the accessories to the radio on the belt.

The draft of this record was sent to Captain Paul Wilson on March 31, 2006.

Corrected draft was returned to CTA Communications on April 5, 2006.

Interviewee Name & Address:  
Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: **Green Valley Fire District**

Contact Name: **Ken Shultz**

Position: **Operations Captain**

Phone: **625-9400**

Email: **kshultz@gvfire.org**

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	
<b>Mobiles</b>	25	22	22	22		
<b>Portables</b>	55	22	22	22		
<b>Control Stations</b>	4					
<b>Paging units</b>	60	22	22	22		
<b>Other Devices</b>						

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

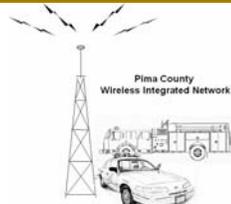
**Clarifications:**

Mobiles 13-VHF 12-UHF

Portables all VHF

Control Stations all VHF

Paging Units are Digital/Analog

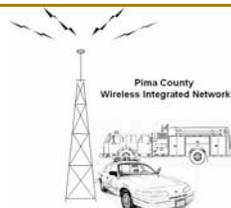



c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	2	yes
Water Tender	2	yes
Pumper/ Engine	2	yes
Ladder Truck	2	yes
Ambulance		
Patrol Vehicles		
Jail Transport		
Special Ops	2	yes
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars	2	yes
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

**Clarifications:**

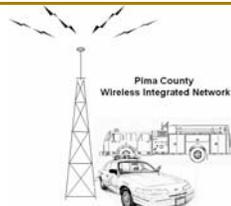
Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
555 N. La Canada Dr.	1	Station Alert System
3005 S. Camino Del Sol	1	Station Alert System
210 E. Continental Rd	1	Station Alert System
1691 W. Duval Commerce Court	1	Station Alert System

**Clarifications:**





**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Portable radio coverage			X			
Portable radio coverage southern end						X
Dispatcher Responsiveness			X			
Position of Repeaters			X			
Equipment Reliability	X					
Dispatchers knowledge of Equipment				X		

- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document3



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** Green Valley Fire District

**Contact Name:** Ken Shultz

**Position:** Operations Captain

**Phone:** 625-9400

**Email:** kshultz@gvfire.org

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

#### I: CURRENT SITUATION

Mobile data equipment do you currently have None

Age: \_\_\_\_ Condition: \_\_\_\_ Adequate: \_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: \_\_\_\_ Name of CAD system: \_\_\_\_

Access to Records Management: \_\_\_\_ Name of RMS system: \_\_\_\_

Records functions available: \_\_\_\_

Field Reporting: \_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_

Email: \_\_\_\_ Outlook or web-based? \_\_\_\_

Text Messaging: Car to car: \_\_\_\_ Car to dispatch: \_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_ State: \_\_\_\_ National : \_\_\_\_



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

Near term- wireless lap tops in all units to aid CAD dispatching, AVL, mapping, preplans, photos, personal safety, and information sharing between units and other agencies, departments.

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**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

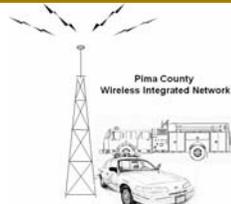
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles					
Wireless Handhelds (PDA's)					
AVL equipped					
Digital Pagers					
Tone Voice Pagers					
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	
Query (license checks, vehicle registrations, wanted persons, property checks)	
Car-to-car or car-to-dispatch message	
Status updates	





#### 4. Computer Systems Checklist – Fire & EMS Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Fire and EMS Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Fire and EMS Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity, as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

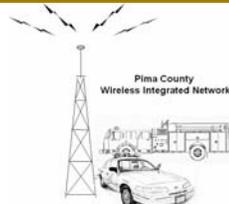
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

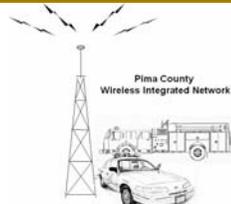


Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

**Fire and EMS Department Checklist**

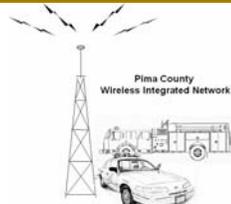
- 1) Department Name Green Valley Fire District
- 2) Contact Name Captain Ken Shultz
- 3) Contact Telephone Number 520-625-9400
- 4) Primary Response Area \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 60 5 Year Growth 100
- 6) Number of Fire Trucks and/or Engines  
Current 6 5 Year Growth 10
- 7) Number of Rescue and/or EMS response vehicles  
Current 3 5 Year Growth 6
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
  
Description Aerial  
  
Current 1 5 Year Growth 2  
  
Description Hazmat  
  
Current 1 5 Year Growth 1



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

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- | Description   | Command                                   |
|---|---|
| Current   | <u>3</u> 5 Year Growth <u>6</u>           |
| 9) Number of Fire or EMS stations   |   |
| Current   | <u>4</u> 5 Year Growth <u>8</u>           |
| 10) Number of Fire and/or Response Zones  |   |
| Current   | <u>      </u> 5 Year Growth <u>      </u> |
| 11) Number of Fire runs per year  |   |
| Current   | <u>60</u> 5 Year Growth <u>200</u>        |
| 12) Number of EMS responses per year  |   |
| Current   | <u>3800</u> 5 Year Growth <u>6000</u>     |
| 13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.) |   |
| Current   | <u>2300</u> 5 Year Growth <u>5000</u>     |
| 14) Number of calls (included above) that are out of your District/Jurisdiction.      |   |
| Current   | <u>200</u> 5 Year Growth <u>500</u>       |
| 15) Number of calls (included above) that are out of Pima County.                     |   |
| Current   | <u>20</u> 5 Year Growth <u>40</u>         |
| 16) Number of calls (included above ) that are out of Arizona.                        |   |
| Current   | <u>0</u> 5 Year Growth <u>0</u>           |
| 17) Number of HAZMAT pre-plans  |   |



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

Current \_\_\_\_ 5 Year Growth \_\_\_\_

18) Number of structure and location pre-plans

Current \_\_\_\_ 5 Year Growth \_\_\_\_

19) Number of Move-up Plans

Current \_\_\_\_ 5 Year Growth \_\_\_\_

20) Number of fire hydrants

Current \_\_\_\_ 5 Year Growth \_\_\_\_

21) Number of Mobile Data terminals

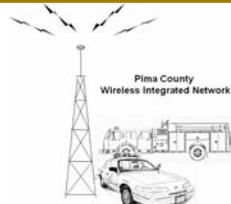
Current 0 5 Year Growth 15

22) Number of Station Computers or others that would log-on to the network

Current 22 5 Year Growth 40

23) Number of personnel that would require an individual log-on password

Current 60 5 Year Growth 100



**Provisions of NFPA 1221**  
**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

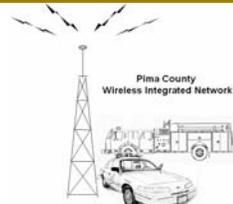
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

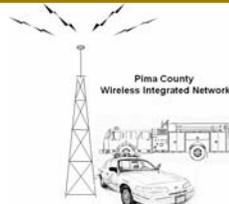
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



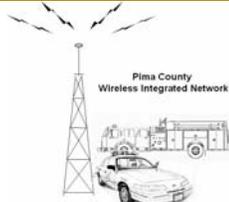
**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

- Fire Rescue frequency bands
- Radio locations and frequencies
- Channelization plan
- Summary of Current communications system

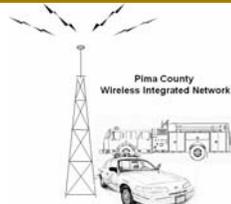


TABLE 2.1.5A Existing Interoperability

Green Valley Fire District		Green Valley Fire District		Green Valley Fire District	
Agency Types		Agency Types		Agency Types	
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives
	Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection
	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration
	Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security
	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation
	Elephant Head Vol. FD		Pima County Sheriff's Dept.		Immigration and Customs Enforcement
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service
	Green Valley Fire District		Pascua Pueblo PD		Bureau of Land Management
	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife
	Mt. Lemmon Fire District	X	Tohono O'odham Tribal Police		U.S. Forest Service
	Northwest Fire District		Tucson Airport Authority PD		U.S. Marshals Service
	Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety
	Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish
	Rincon Valley Fire District				
	Rural Metro Fire/Southwest Ambulance				
	South Tucson FD				
	Three Points FD				
	Tohono O' odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				

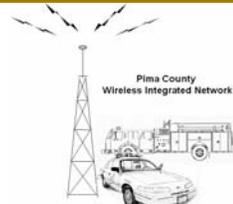
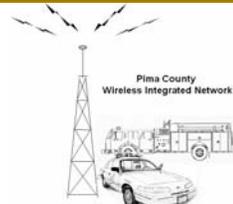


TABLE 2.1.5B Future Interoperability

Agency Types	Fire Agencies	Police and Emergency Services Agencies	Federal Agencies	Agencies
Green Valley Fire District				
	Ajo/Gibson Vol. FD		Bureau of Alcohol, Tobacco, Firearms & Explosives	
	Arivaca Vol. FD		Customs and Border Protection	
	Avra Valley Fire District		Drug Enforcement Administration	
	Corona de Tucson Fire District		Emergency Man. & Homeland Security	
X	Drexel Heights Fire District		Federal Bureau of Investigation	
	Elephant Head Vol. FD		Immigration and Customs Enforcement	
	Golder Ranch Fire District		National Park Service	
	Green Valley Fire District		Bureau of Land Management	
	Helmet Peak Fire District		U.S. Fish & Wildlife	
	Mt. Lemmon Fire District		U.S. Forest Service	
	Northwest Fire District		U.S. Marshals Service	
	Pascua Pueblo FD		Arizona Dept. of Public Safety	X
	Picture Rocks Fire District		Arizona Game and Fish	
	Rincon Valley Fire District			
	Rural Metro Southwest Ambulance			
	South Tucson FD			
	Three Points FD			
	Tohono O'odham FD			
	Tucson Airport Authority FD			
	Tucson FD			
	Ajo Ambulance			
	Why Fire District			

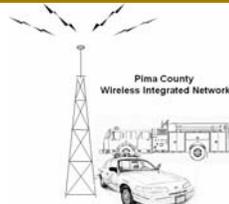
  

Agency Types	Police and Emergency Services Agencies
Green Valley Fire District	
	Marana PD
	Oro Valley PD
	Pascua Yaqui PD
	Pima College Dept. of Public Safety
	Pima County OEM & Homeland Security
X	Pima County Sheriff's Dept.
	Pima County Sheriff's Dept. - Ajo
	Sahuarita PD
	South Tucson PD
	Tohono O'odham Tribal Police
	Tucson Airport Authority
	Tucson PD
	University of Arizona Police



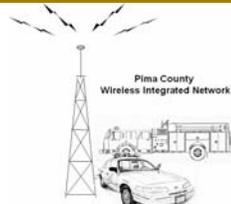
**TABLE 2.1.5C**  
**Green Valley Fire District**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	2.0	
2	Improved Voice Radio Coverage – Central County	2.0	
3	Improved Voice Radio Coverage – Western County	2.0	
4	In-building Coverage	5.0	
5	Minimize Local Interference	4.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	5.0	
7	On-scene Fire Channels	5.0	
8	Monitored Firegrounds	5.0	
9	Emergency Alerting	5.0	
10	Workgroup Oriented Operation	5.0	
11	Voice Security	4.0	
12	Operational Boundary Transparency	4.0	
13	One System Serves All Agencies	4.0	
14	Interoperability through Dispatch	4.0	
15	Interoperability with Adjacent Counties	4.0	
16	Interoperability with State Agencies	4.0	
17	Interoperability with Federal Agencies	4.0	
18	Person Location	5.0	
19	System Control	4.0	
20	Recorded Operations	5.0	
21	Simplified User Operations	5.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	5.0	
23	Dispatch Capacity	5.0	
24	Dispatch Coverage	5.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	4.0	
26	Cross CAD Interconnection	4.0	
27	Mobile Data Criticality	4.0	
28	Vehicle Location	4.0	
29	EMS Telemetry	4.0	
30	High-Speed Broadband Service	4.0	
31	Mobile Applications	4.0	
32	Advanced Mobile Applications	4.0	
33	Access County Information	4.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	4.0	
35	Fire Station Alerting	4.0	
36	Paging over Cellular	4.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	4.0	
38	Owner-Controlled Backbone	4.0	
39	Microwave Connectivity	3.0	
40	Microwave Additional Capacity	3.0	
41	Regional Connectivity	4.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	5.0	
47	Centralized Maintenance	5.0	



**TABLE 2.1.5C**  
**Green Valley Fire District**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	4.0	
49	Commonality of Equipment	4.0	
50	Multiple Sources	4.0	
51	Phased Implementation	3.0	
52	Tiered Subscriber Cost	3.0	
<b>Ranking Scale:</b> 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.1.6 Helmet Peak Fire District

### A. Current Environment

#### 1. Operational

The Helmet Peak Volunteer Fire Department is located in Sahuarita. The Drexel Heights Communications Center provides fire and rescue dispatch support for the Green Valley Fire District.

#### 2. Functional

The Department utilizes the Green Valley Fire Department's radio system.

#### 3. Technical

The Department utilizes a conventional VHF network. There are two repeater sites operating at 155.775/ 158.895 and 150.805 and 155.355.

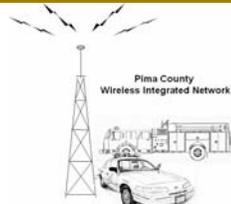
#### 4. Interoperability

There were no existing interoperability requirements provided for this department as shown in TABLE 2.1.6A.

### B. Positive Attributes of Current Environment

#### 1. Operational

This department will align itself with the Green Valley Fire Department's radio requirements.



2. Functional

A system upgrade should incorporate his department's service area with the Green Valley Fire Departments service area.

3. Technical

C. Desired Attributes of Current and Future Environment

1. Operational

2. Functional

3. Technical

4. Interoperability Matrix

TABLE 2.1.6B shows the future direct interoperability capabilities with other agencies for the department. The Fire Department should have radio interoperability with the local Fire Departments. It is desirable to have common frequencies or gateway patches to facilitate interoperability with other agencies.

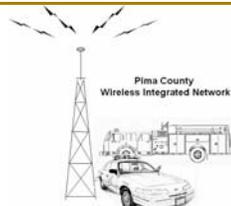
5. Attributes Matrix

Please refer to TABLE 2.1.6C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.

D. Supporting Information

1. Interview Record

None.



## 2. Radio Usage Form

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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

Organization/Agency Name: ~~FD~~ *FD Helmet Peak*

Contact Name: ~~CRACK~~ *CRACK* Position: ~~CHIEF~~ *CHIEF*

Phone: ~~3993534~~ *3993534* Email: ~~CTA@CTA.COM~~

---

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

**I: RADIO UTILIZATION CURRENT SITUATION**

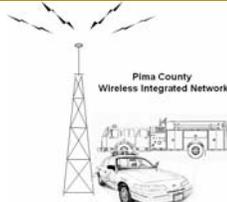
a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C - F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

---

 COMMUNICATIONS

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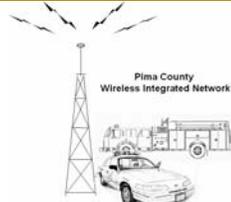
Radio Usage Information Survey  
 February 7, 2006

A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	<del>34</del>	<del>10</del>	<del>10</del>	<del>10</del>	<del>4</del>
Portables	<del>3</del>	<del>3</del>	<del>3</del>	<del>3</del>	<del>3</del>
Control Stations	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>
Paging units	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>
Other Devices	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>	<del>1</del>

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

Clarifications:

<del>34</del>	PORTABLE	34
<del>3</del>	PORTABLE	3
<del>1</del>	MOBILE	22
<del>1</del>	MOBILE	6
<del>1</del>		
<del>1</del>		
<del>1</del>		



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 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	0	YES
Water Tender	0	YES
Pumper/ Engine	0	YES
Ladder Truck	0	YES
Ambulance	0	YES
Patrol Vehicles	0	YES
Jail Transport	0	YES
Special Ops	0	YES
Vehicular Repeaters *	0	YES
Disposal Collector	0	YES
Maintenance Truck	0	YES
Utility Trucks	0	YES
Highway Maintenance	0	YES
Vans	0	YES
Buses	0	YES
Cars	(POV'S)	YES
Other (Please Describe)	0	YES

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

APPARATUS HAVE 1 UHF & 1 UHF  
 POV'S HAVE ONLY VHF



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d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
1549D S. MISSION RD	VHF BASE	IN CASE OF DISPATCH FAILURE

Clarifications:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

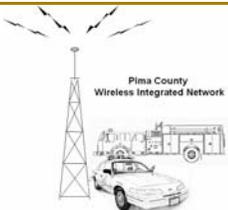
Radio Usage Information Survey  
 February 7, 2006

**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List	Problem	0	1	2	3	4	5
	RADIO COVERAGE (DEAD SPACES)						

- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.



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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

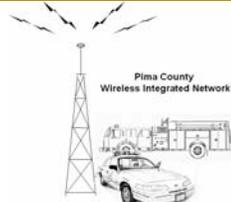
**Clarifications:**

[A series of approximately 15 horizontal lines for handwritten clarification notes, each preceded by a small square box.]

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	[ ]	[ ]	[ ]	[ ]
Portables	[ ]	[ ]	[ ]	[ ]
Control Stations	[ ]	[ ]	[ ]	[ ]
Paging units	[ ]	[ ]	[ ]	[ ]
Other Devices	[ ]	[ ]	[ ]	[ ]



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Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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**Clarifications:**

[Redacted area with horizontal lines]

Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interv\cw\PCWIN Radio Usage Survey.DOC



### 3. Mobile Data Survey

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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

Organization/Agency Name: Helmet Peak Vol. Fire Dept.

Contact Name: James Craig Position: ASST. Fire Chief

Phone: 520-399-3534 Email: \_\_\_\_\_

---

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have

Age: \_\_\_\_\_ Condition: \_\_\_\_\_ Adequate: \_\_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: \_\_\_\_\_ Name of CAD system: DHFD

Access to Records Management: \_\_\_\_\_ Name of RMS system: \_\_\_\_\_

Records functions available: \_\_\_\_\_

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_\_

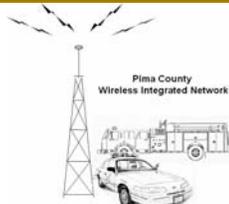
Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging: Car to car: \_\_\_\_\_ Car to dispatch: \_\_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_\_ State: \_\_\_\_\_ National : \_\_\_\_\_

---

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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

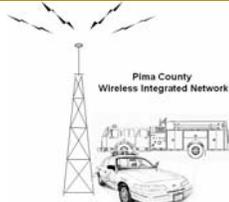
Problems or concerns with your current capabilities:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

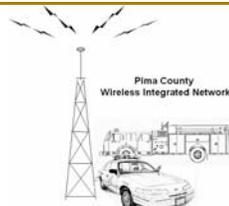
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	Currently in service		USAGE		
	On Hand	Un-met Needs	Estimated Future Needs (use either number of units or % growth)		
			2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles					
Wireless Handhelds (PDA's)					
AVL equipped					
Digital Pagers					
Tone Voice Pagers					
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	
Query (license checks, vehicle registrations, wanted persons, property checks)	
Car-to-car or car-to-dispatch message	
Status updates	
Emails	





#### 4. Computer Systems Checklist – Fire & EMS Departments

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Pima County, Arizona  
Wireless Integrated Network (PCWIN) March 14, 2006

### Instructions for the Fire and EMS Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Fire and EMS Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

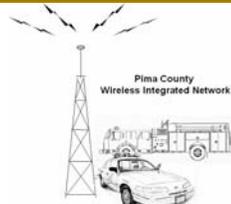
This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

---



Computer System Checklist – Fire and EMS Department  
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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

Fire and EMS Department Checklist

- 1) Department Name HPVFD
- 2) Contact Name JAMES CRAIG
- 3) Contact Telephone Number 520-399-3534
- 4) Primary Response Area HPVFD  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 30 5 Year Growth 33
- 6) Number of Fire Trucks and/or Engines  
Current 2 5 Year Growth \_\_\_\_\_
- 7) Number of Rescue and/or EMS response vehicles  
Current 2 5 Year Growth \_\_\_\_\_
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
Description   
Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_  
Description \_\_\_\_\_  
Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_



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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

- Description \_\_\_\_\_  
Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_
- 9) Number of Fire or EMS stations  
Current 1 5 Year Growth \_\_\_\_\_
- 10) Number of Fire and/or Response Zones  
Current 13 5 Year Growth \_\_\_\_\_
- 11) Number of Fire runs per year  
Current ~~10~~ 5 5 Year Growth \_\_\_\_\_
- 12) Number of EMS responses per year  
Current 100 5 Year Growth \_\_\_\_\_
- 13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.)  
Current 10 5 Year Growth \_\_\_\_\_
- 14) Number of calls (included above) that are out of your District/Jurisdiction.  
Current 10 5 Year Growth \_\_\_\_\_
- 15) Number of calls (included above) that are out of Pima County.  
Current 0 5 Year Growth \_\_\_\_\_
- 16) Number of calls (included above) that are out of Arizona.  
Current 0 5 Year Growth \_\_\_\_\_



Computer System Checklist - Fire and EMS Department  
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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

- 17) Number of HAZMAT pre-plans  
Current 0 5 Year Growth
- 18) Number of structure and location pre-plans  
Current 0 5 Year Growth
- 19) Number of Move-up Plans  
Current 0 5 Year Growth
- 20) Number of fire hydrants  
Current 0 5 Year Growth
- 21) Number of Mobile Data terminals  
Current 0 5 Year Growth
- 22) Number of Station Computers or others that would log-on to the network  
Current 1 5 Year Growth
- 23) Number of personnel that would require an individual log-on password  
Current 10 5 Year Growth



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

**Provisions of NFPA 1221**

**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

4. Activities

D.2 The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

D.3 The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

D.3.1 Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

D.4 The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

D.5 Reference Material

D.5.1 APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.



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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

D.5.2 NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

D.5.3 Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided
  - Fire Rescue frequency bands

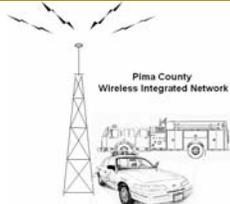


TABLE 2.1.6A Existing Interoperability

Agency Types	Agency Types	Agency Types
Helmet Peak Fire District	Helmet Peak Fire District	Helmet Peak Fire District
Ajo/Gibson Vol. FD		
Arivaca Vol. FD		
Avra Valley Fire District		
Corona de Tucson Fire District		Bureau of Alcohol, Tobacco, Firearms & Explosives
Drexel Heights Fire District	Marana PD	Customs and Border Protection
Elephant Head Vol. FD	Oro Valley PD	Drug Enforcement Administration
Golder Ranch Fire District	Pascua Yaqui PD	Emergency Man. & Homeland Security
Green Valley Fire District	Pima College Dept. of Public Safety	Federal Bureau of Investigation
Helmet Peak Fire District	Pima County OEM & Homeland Security	Immigration and Customs Enforcement
Mt. Lemmon Fire District	X Pima County Sheriff's Dept.	National Park Service
Northwest Fire District	Pima County Sheriff's Dept. - Ajo	Bureau of Land Management
Pascua Pueblo FD	Sahuarita PD	U.S. Fish & Wildlife
Picture Rocks Fire District	South Tucson PD	U.S. Forest Service
Rincon Valley Fire District	Tohono O'odham Tribal Police	U.S. Marshals Service
Rural Metro Fire/Southwest Ambulance	Tucson Airport Authority PD	Arizona Dept. of Public Safety
South Tucson FD	Tucson PD	Arizona Game and Fish
Three Points FD	University of Arizona Police	
Tohono O' odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		

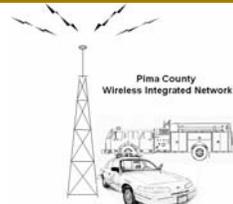
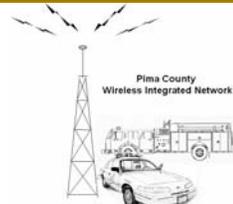


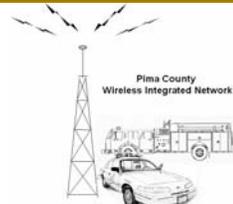
TABLE 2.1.6B Future Interoperability

Agency Types	Agency Types	Agency Types																																																																																																						
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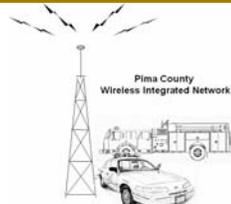
**TABLE 2.1.6C**  
**Helmet Peak Fire District**

DESIGNATOR NO.	ATTRIBUTE	Helmet Peak Fire Dist.	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	0.0	
2	Improved Voice Radio Coverage – Central County	5.0	
3	Improved Voice Radio Coverage – Western County	0.0	
4	In-building Coverage	0.0	
5	Minimize Local Interference	3.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	2.0	
7	On-scene Fire Channels	4.0	
8	Monitored Firegrounds	2.0	
9	Emergency Alerting	4.0	
10	Workgroup Oriented Operation		
11	Voice Security	0.0	
12	Operational Boundary Transparency	1.0	
13	One System Serves All Agencies	4.0	
14	Interoperability through Dispatch	4.0	
15	Interoperability with Adjacent Counties	1.0	
16	Interoperability with State Agencies	2.0	
17	Interoperability with Federal Agencies	2.0	
18	Person Location	0.0	
19	System Control	1.0	
20	Recorded Operations	1.0	
21	Simplified User Operations	1.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	0.0	
23	Dispatch Capacity	0.0	
24	Dispatch Coverage	5.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	1.0	
26	Cross CAD Interconnection	1.0	
27	Mobile Data Criticality	1.0	
28	Vehicle Location	1.0	
29	EMS Telemetry	1.0	
30	High-Speed Broadband Service	1.0	
31	Mobile Applications	1.0	
32	Advanced Mobile Applications	1.0	
33	Access County Information	1.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	4.0	
35	Fire Station Alerting	1.0	
36	Paging over Cellular	3.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	3.0	
38	Owner-Controlled Backbone		
39	Microwave Connectivity	0.0	
40	Microwave Additional Capacity	0.0	
41	Regional Connectivity	0.0	
<b>Reliability and Availability</b>			
42	Survivability	2.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	1.0	
45	Power Backup	3.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	3.0	
47	Centralized Maintenance	0.0	



**TABLE 2.1.6C**  
**Helmet Peak Fire District**

DESIGNATOR NO.	ATTRIBUTE	Helmet Peak Fire Dist.	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	2.0	
49	Commonality of Equipment	5.0	
50	Multiple Sources	0.0	
51	Phased Implementation	0.0	
52	Tiered Subscriber Cost	5.0	
<b>Ranking Scale:</b> 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.1.7 Marana Police Department

### A. Current Environment

#### 1. Operational

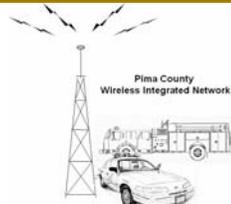
The Town of Marana is located in the northwest Tucson metropolitan area and has experienced rapid growth due to annexations, residential and commercial development. The Marana Police Department has grown into a police department of sixty-eight employees. The Marana Police Department's mission is to serve the Town of Marana community, protect life and property, prevent crimes and solve problems.

#### 2. Functional

Headquarters is located at the Marana Municipal Complex – 1155 W. Civic Center Road. The Marana Police Operations Center is located on 13291 North Lon Adams in Marana. The department is responsible for a 25 square miles and a population of 40,000 which is the town of Marana. Twenty-five percent of the population is transitory. Population fluctuates seasonally with the highest population during winter months and the lowest population during the summer months.

#### 3. Technical

Marana Police Department has an 800 MHz MOTOROLA ASTRO 25 LE system to support their operations. It is a three-site (3)/ four (4) channel simulcast system operating in conventional-mode. The repeater sites are connected via microwave links. It has been in operation for one year. Radios include 85 XTL 5000 mobile radios and 90 XTS5000 portables.



The radio sites include NWF 37, Beacon Hill and the Op Center. There is opportunity for radio site expansion at the Ops Center and Beacon Hill. Both of these sites have a 90ft self-support tower.

The current Communication Center is equipped with four console positions. The consoles are MCC5000 consoles. Currently they operate as desktop control stations with limited dispatch features. The consoles will be replaced in the very near future. The facility is manned 24 hours/ 7 days per week. It is an enhanced E911 PSAP. Dispatchers provide call-taking and dispatch services. Typically there are two dispatch positions manned. The CAD system is GEO911 and local, NCIC, and ACIC records can be accessed. There are no AVL, or mobile data capabilities. Records are accessed from the of COPLINK(R) database manufactured by Knowledge Computing Corporation. This is the TPD database.

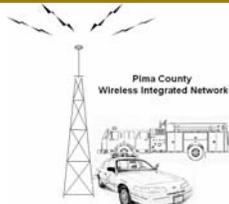
All patrol vehicles are equipped with mobiles; typically there are 8 patrol vehicles on the street, and 6 detectives. All officers and detectives are equipped with mobiles and portables. There are a total of 55 mobiles and 55 portables in operation. Inventory includes a total of 85 mobiles and 85 portables.

The repeater channels for the ASTRO 25 system are listed below:

Xmt	Rx
866.075	821.075
866.4375	821.4375
866.815	821.815
868.7875	823.7875

The Marana Police operation channels include:

Dispatch	Repeater
Ops 1	Repeater
Ops 2	Repeater



Dispatch	Repeater
Gateway	Repeater
UHF	Repeater

4. Interoperability

TABLE 2.1.7A shows the existing direct interoperability capabilities with other agencies for the department. The system ASTRO25 system provides 800 MHz communications capabilities throughout the town. The Gateway repeater and the UHF repeater are used for communications with outside agencies and the communications with the Sheriff's Department is performed through the ACU patch.

B. Positive Attributes of Current Environment

1. Operational

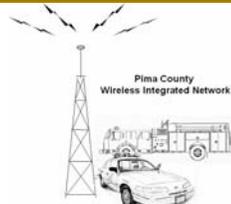
The radio system is a new ASTRO25 LE system and it is compliant with Project 25 standards. The Communications Center is new.

2. Functional

The ASTRO25 LE system is built to support wide area operations and digital technologies and to facilitate growth.

3. Technical

The ASTRO25 LE system is built to support wide area operations and digital technologies and to facilitate growth. Mobile data, Wi-Max applications, new dispatch records management and CAD applications can be expanded to allow information to be sent from the Communications Center to the police vehicles.



C. Desired Attributes of Current and Future Environment

1. Operational

The ASTRO25 LE system is flexible and will allow for easy expansion. It will support a planned move to a new dispatch center and utilize the existing center as a backup center.

2. Functional

The ASTRO25 LE system as designed provides excellent radio reliability throughout the police service area. There are opportunities to collocate and upgrade in alliance with the PCWIN system.

3. Technical

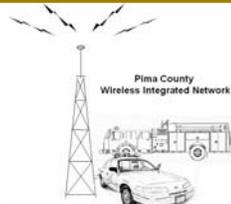
The Marana Police Department requires Mobile Data applications in the future. Near term requirements include AVL, RMS-mobile data access to NCIC, ACJIS databases, mapping capabilities. Long term objectives includes mobile data file transfers (mug shots), messaging, email, internet, intranet access, mobile workstations and videos.

4. Interoperability Matrix

TABLE 2.1.7B shows the future direct interoperability requirements with other agencies for department.

5. Attributes Matrix

Please refer to TABLE 2.1.7C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Marana Police Department

**File Name:** - Marana Police Department Interview Record  
Final. doc

**Date of Interview:** - February 24, 2006

**Location of Interview:** - Pima County Sheriff Department

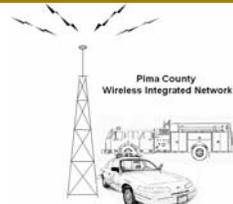
**Persons Interviewed:** - Rick Brown IT/Radio Tech-MPD  
Phone: 520 382 - 2000  
Email: rbrown@marana.com  
Paul Ashcroft/ MPD  
Phone: 520 382 – 2000  
Email: pashcraft@marana.com

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

The following points were conveyed to CTA during this interview:

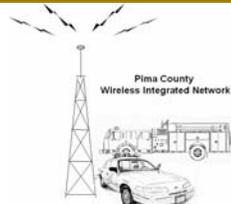
**Organization and Responsibilities**

1. The Town of Marana, located in the northwest Tucson metropolitan area has experienced rapid growth due to annexations, residential and commercial development. The Marana Police Department has grown into a police department of sixty-eight employees. The Marana Police Department's mission is to serve the Town of Marana community, protect life and property, prevent crimes and solve problems. The department is responsible for 125 square miles and a population of 40,000. Twenty-five percent of the population is transitory. Population fluctuates seasonally with the highest population during winter months and the lowest population during the summer months.
2. Headquarters is located at the Marana Municipal Complex – 1155 W. Civic Center Road. The Marana Police Operations Center is located on 13291 North Lon Adams in Marana.



**Present Situation**

1. Marana Police Department has an 800 MHz MOTOROLA ASTRO 25 Le system to support their operations. It is a three-site/ 4-channel simulcast system operating in conventional-mode. The repeater sites are connected via microwave links. It has been in operation for one year. Radios include 85 - XTL 5000 mobiles and 90 - XTS5000 portables.
2. The radio sites include NWF 37, Beacon Hill and the Op Center. There is opportunity for radio site expansion at the Ops Center and Beacon Hill. Both of these sites have a 90ft self-support tower.
3. The radio system was built to provide 95% coverage/ 95 % over the service area – 125 square miles (portable on the street).
4. The current Communication Center is equipped with four console positions. The consoles are MCC5000 consoles. Currently they operate as desktop control stations with limited dispatch features.
5. The facility is manned 24 hours/ 7 days per week. It is an enhanced E911 PSAP. Dispatchers provide call-taking and dispatch services. Typically there are two dispatch positions manned.
6. The CAD system is GEO911 and local, NCIC, and ACIC records can be accessed. There are no AVL, or mobile data capabilities. Records are accessed from the of COPLINK(R) database manufactured by Knowledge Computing Corporation. This is the TPD database.
7. All patrol vehicles are equipped with mobiles; typically there are 8 patrol vehicles on the street, and 6 detectives. All officers and detectives are equipped with mobiles and portables. There are a total of 55 mobiles and 55 portables in operation. Inventory includes a total of 85 mobiles and 85 portables.



8. Channel assignments are:

Xmt	Rx
866.075	821.075
866.4375	821.4375
866.815	821.815
868.7875	823.7875

9. Marana operation channels:

Dispatch	Repeater
Ops 1	Repeater
Ops 2	Repeater
Gateway	Repeater
UHF	Repeater

**Present Problems**

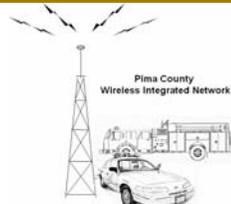
1. No problems identified.

**Future Requirements**

1. Marana Police Department requires Mobile Data applications in the future:

<u>Near-Term</u>	<u>Long-term</u>
AVL	Mug
RMS	Messaging
NCIC	Email
ACJIS	Internet
Mapping	Intranet
	Mobile Workstations
	Mobile Video

2. Desired radio features include Priority override, and alert tones.



**Additional Comments**

None.

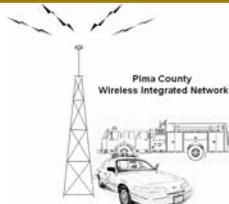
The draft of this record was sent to Rick Brown and Paul Ashcroft on March 23, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:

Rick Brown  
Paul Ashcroft  
11555 W. Civic Center Drive  
Marana, AZ 85653

MAFILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\022406 Marana  
Police Department FINAL.doc



## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** TOWN OF MARANA

**Contact Name:** RIKK BROWN/LT PAUL ASHCRAFT **Position:** IT RADIO COMMUNICATIONS TECH

**Phone:** 520.382.2000 **Email:** RBROWN@MARANA.COM

---

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

**I: RADIO UTILIZATION CURRENT SITUATION**

a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

---

 Page 1 of 7



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	Shift 4
Mobiles	85	55	10	10	10	10
Portables	85	55	10	10	10	10
Control Stations	4	4	4	4	4	4
Paging units	Ø	Ø	Ø	Ø	Ø	Ø
Other Devices	Ø	Ø	Ø	Ø	Ø	Ø

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

ALL OPERATE IN 800 MHz

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles	50	YES



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

Jail Transport		
Special Ops	1	YES
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars	32	YES
Other (Please Describe) MOTORS	2	YES

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

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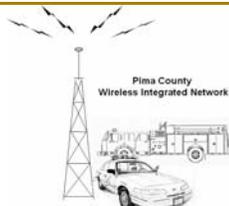
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d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
11555 W. CIVIC CENTER DR MARIANA, AZ 85653	4	DISPATCH





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

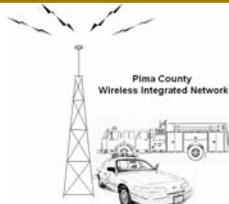
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\_\_\_\_\_

**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
MISSED TRANSMISSIONS			X			
COVERAGE	X					





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	25	40	48	40
Portables	25	40	48	40
Control Stations	1	2	2	2
Paging units	∅	∅	∅	∅
Other Devices	∅	∅	∅	∅

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

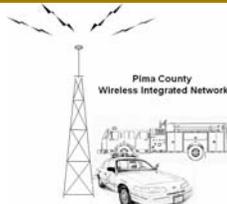
Thank you for your assistance.

Please hand this survey in during your interview or return to:

CTA Communications, Inc. Fax: (434) 239-9221  
 P.O. Box 4579 Phone: (434) 239-9200  
 Lynchburg, VA 24502-0579 [PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** TOWN OF MARANA

**Contact Name:** RICK BROWN **Position:** IT TECHNICIAN

**Phone:** 520.387.2000 **Email:** RBROWN@MARANA.COM

---

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have: NONE

Age: \_\_\_\_\_ Condition: \_\_\_\_\_ Adequate?: \_\_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: \_\_\_\_\_ Name of CAD system: \_\_\_\_\_

Access to Records Management: \_\_\_\_\_ Name of RMS system: \_\_\_\_\_

Records functions available: \_\_\_\_\_

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_\_

Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging: Car to car: \_\_\_\_\_ Car to dispatch: \_\_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_\_ State: \_\_\_\_\_ National: \_\_\_\_\_

---

 Page 1 of 4



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

AVL - NEAR TERM (NT)

RMS NT

MUG LONGER TERM (LT)

NCIC NT

ACSIS NT

MAPPING NT

MESSAGING LT

E-MAIL LT

INTERNET LT

INTRANET LT

MOBILE WORKSTATIONS - NT



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

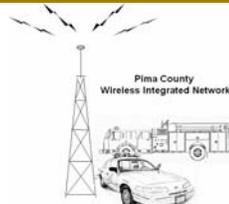
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	Currently in service		USAGE		
	On Hand	Un-met Needs	Estimated Future Needs (use either number of units or % growth )		
			2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	0	0	100	140	188
Wireless Handhelds (PDA's)	0	0	15	25	35
AVL equipped	0	0	100	140	188
Digital Pagers	-	-	-	-	-
Tone Voice Pagers	-	-	-	-	-
Other Devices _____	-	-	-	-	-

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions	
	per hour	or per day
CAD Dispatch	400	DAY
Query (license checks, vehicle registrations, wanted persons, property checks)	100	DAY
Car-to-car or car-to-dispatch message	1200	DAY
Status updates	265,000	YR



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
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Emails	1000 DAY
Field Report	150 DAY
Other <u>MOBILE VIDEO</u>	
Other <u>FINGER PRINTING</u>	
Other _____	

Any additional comments or questions you have regarding mobile data:

IMMEDIATE NEED.  
WOULD LIKE TO USE TECHNOLOGIES AS MUCH AS POSSIBLE

Please hand this survey in during your interview or return to:

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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#### 4. Computer Systems Checklist – Law Enforcement Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Law Enforcement Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Law Enforcement Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity, as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. The NFPA 1221 provisions have been adopted by the Commission on Accreditation for Law Enforcement Agencies (CALEA) for CAD systems. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

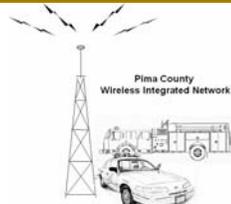
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.



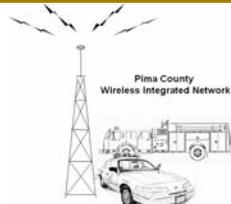
**Law Enforcement Department Checklist**

- 1) Department Name Marana P.D.
- 2) Contact Name Paul Ashcraft
- 3) Contact Telephone Number 520-382-2043
- 4) Primary Response Area Marana Town limits. Currently 136 square miles in Pima and Pinal County's

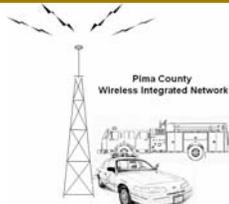
\_\_\_\_\_

\_\_\_\_\_

- 5) Number of Personnel  
Current 76 Sworn 5 Year Growth 35 Sworn
- 6) Number of Uniform vehicles  
Current 55 5 Year Growth 35
- 7) Number of Detective and radio equipped administrative vehicles  
Current 26 5 Year Growth 10
- 8) Number and description of specialized vehicles (such as SWAT, Command, Crime Scene, etc.)  
Description Crime Scene  
Current 2 5 Year Growth 2  
Description Mounted Unit/ATV/Motor Units  
Current 5 5 Year Growth 5



- Description SWAT
- Current 1 5 Year Growth 1
- 9) Number of stations or precincts
- Current 2 5 Year Growth 1
- 10) Number of response zones or beats
- Current 4 5 Year Growth 1
- 11) Number of dispatched calls per year
- Current 52,000 5 Year Growth \_\_\_\_\_
- 12) Number of traffic stops per year
- Current 13,709 5 Year Growth \_\_\_\_\_
- 13) Number of on-view or officer initiated calls per year
- Current unk 5 Year Growth \_\_\_\_\_
- 14) Number of Other calls requiring a unit (education, assist motorist, standby, etc.)
- Current unk 5 Year Growth \_\_\_\_\_
- 15) Number of calls (included above) that are out of your zone.
- Current unk 5 Year Growth \_\_\_\_\_
- 16) Number of calls (included above) that are out of Pima County.
- Current 43 5 Year Growth \_\_\_\_\_



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

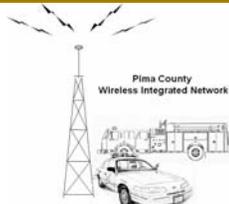
March 14, 2006

- 17) Number of calls (included above ) that are out of Arizona.  
Current 0 5 Year Growth \_\_\_\_\_
- 18) Number of arrests per year (other than traffic citations)  
Current 1,796 5 Year Growth \_\_\_\_\_
- 19) Number of ACIC/NCIC requests  
Current 450,000 5 Year Growth \_\_\_\_\_
- 21) Number of case report numbers issued per year.  
Current 7,786 5 Year Growth \_\_\_\_\_
- 22) Number of Mobile Data terminals  
Current 0 5 Year Growth 85
- 23) Number of station computers or others that would log-on to the network  
Current 10 5 Year Growth 20
- 24) Number of personnel that would require an individual log-on password  
Current 76 5 Year Growth 111
- 25) Highest typical number of officers than are on duty.  
Current 13 5 Year Growth 24

**Provisions of NFPA 1221 and CALEA**



Computer System Checklist – Law Enforcement  
Departments  
Page 4 of 7



#### Annex D Computer-Aided Dispatching (CAD) Systems

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

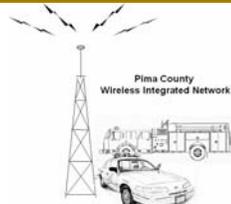
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

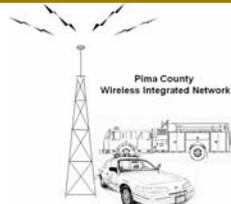
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided
  - FCC WTB
  - Law Enforcement frequency bands
  - Marana 200 demographics.pdf
  - Town of Marana CATP coverage

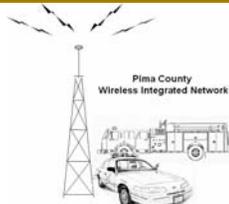


TABLE 2.1.7A Existing Interoperability

Agency Types	Agency Types	Agency Types
Marana PD	Marana PD	Marana PD
Ajo/Gibson Vol. FD		Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD		Customs and Border Protection
Avra Valley Fire District		Drug Enforcement Administration
Corona de Tucson Fire District		Emergency Man. & Homeland Security
Drexel Heights Fire District	Marana PD	Federal Bureau of Investigation
Elephant Head Vol. FD	Oro Valley PD	Immigration and Customs Enforcement
Golder Ranch Fire District	Pascua Yaqui PD	National Park Service
Green Valley Fire District	Pima College Dept. of Public Safety	Bureau of Land Management
Helmet Peak Fire District	Pima County OEM & Homeland Security	U.S. Fish & Wildlife
Mt. Lemmon Fire District	Pima County Sheriff's Dept.	U.S. Forest Service
Northwest Fire District	Pima County Sheriff's Dept. - Ajo	U.S. Marshals Service
Pascua Pueblo FD	Sahuarita PD	Arizona Dept. of Public Safety
Picture Rocks Fire District	South Tucson PD	Arizona Game and Fish
Rincon Valley Fire District	Tohono O'odham Tribal Police	
Rural Metro Fire/Southwest Ambulance	Tucson Airport Authority PD	
South Tucson FD	Tucson PD	
Three Points FD	University of Arizona Police	
Tohono O'odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		

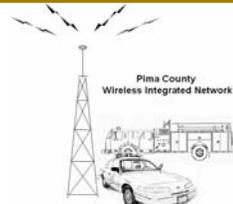
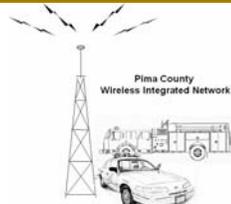


TABLE 2.1.7B Future Interoperability

Agency Types	Fire Agencies
Tohono O'odham FD	
	Ajo/Gibson Vol. FD
	Arivaca Vol. FD
	Avra Valley Fire District
	Corona de Tucson Fire District
X	Drexel Heights Fire District
	Elephant Head Vol. FD
	Golder Ranch Fire District
	Green Valley Fire District
	Helmet Peak Fire District
	Mt. Lemmon Fire District
	Northwest Fire District
	Pascua Pueblo FD
	Picture Rocks Fire District
	Rincon Valley Fire District
	Rural Metro Southwest Ambulance
	South Tucson FD
	Three Points FD
	Tohono O'odham FD
	Tucson Airport Authority FD
	Tucson FD
	Ajo Ambulance
X	Why Fire District

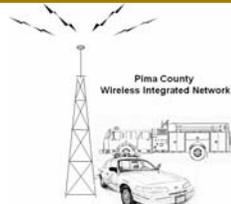
Agency Types	Police and Emergency Services Agencies
Tohono O'odham FD	
	Marana PD
	Oro Valley PD
	Pascua Yaqui PD
	Pima College Dept. of Public Safety
	Pima County OEM & Homeland Security
X	Pima County Sheriff's Dept.
	Pima County Sheriff's Dept. - Ajo
	Sahuarita PD
	South Tucson PD
X	Tohono O'odham Tribal Police
	Tucson Airport Authority
	Tucson PD
	University of Arizona Police

Agency Types	Federal Agencies	Agencies
Tohono O'odham FD		
	Bureau of Alcohol, Tobacco, Firearms & Explosives	
	Customs and Border Protection	
	Drug Enforcement Administration	
	Emergency Man. & Homeland Security	
	Federal Bureau of Investigation	
	Immigration and Customs Enforcement	
	National Park Service	
	Bureau of Land Management	
	U.S. Fish & Wildlife	
	U.S. Forest Service	
	U.S. Marshals Service	
X	Arizona Dept. of Public Safety	
	Arizona Game and Fish	



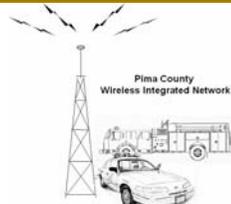
**TABLE 2.1.7C**  
**Marana Police Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	3.0	
2	Improved Voice Radio Coverage – Central County	4.0	
3	Improved Voice Radio Coverage – Western County	5.0	
4	In-building Coverage	5.0	
5	Minimize Local Interference	5.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	4.0	
7	On-scene Fire Channels		
8	Monitored Firegrounds		
9	Emergency Alerting	4.0	
10	Workgroup Oriented Operation	5.0	
11	Voice Security	4.0	
12	Operational Boundary Transparency	4.0	
13	One System Serves All Agencies	5.0	
14	Interoperability through Dispatch	4.0	
15	Interoperability with Adjacent Counties	5.0	
16	Interoperability with State Agencies	4.0	
17	Interoperability with Federal Agencies	4.0	
18	Person Location	4.0	
19	System Control	4.5	
20	Recorded Operations	5.0	
21	Simplified User Operations	4.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	5.0	
23	Dispatch Capacity	5.0	
24	Dispatch Coverage	5.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	4.5	
26	Cross CAD Interconnection	5.0	
27	Mobile Data Criticality	4.5	
28	Vehicle Location	4.0	
29	EMS Telemetry		
30	High-Speed Broadband Service	5.0	
31	Mobile Applications	4.5	
32	Advanced Mobile Applications	4.5	
33	Access County Information	4.5	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	2.0	
35	Fire Station Alerting		
36	Paging over Cellular		
<b>Infrastructure Capabilities</b>			
37	Future Expansion	5.0	
38	Owner-Controlled Backbone	5.0	
39	Microwave Connectivity	5.0	
40	Microwave Additional Capacity	5.0	
41	Regional Connectivity	5.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	5.0	
47	Centralized Maintenance	5.0	



**TABLE 2.1.7C**  
**Marana Police Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	5.0	
49	Commonality of Equipment	5.0	
50	Multiple Sources	5.0	
51	Phased Implementation	3.5	
52	Tiered Subscriber Cost	4.0	
<b>Ranking Scale:</b> 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.1.8 Mt. Lemmon Fire District

### A. Current Environment

#### 1. Operational

Currently Drexel Heights Communications Center provides fire and rescue dispatch support for Mt. Lemmon Fire, but will be switching to Rural Metro dispatch in July 2006.

#### 2. Functional

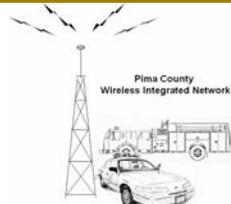
Mt. Lemmon Fire Department covers a 12.5 square miles area.

#### 3. Technical

Mt. Lemmon Fire Department has two radio sites, one at Mt. Lemmon, the other at Mt. Bigelow plus one repeater at Loma Linda Tanks. There are three UHF simplex frequencies. The department goes on EMS calls but does not transport patients. There are approximately 300 calls a year for service: 80% EMS and 3% Fire. The department is equipped with 25 mobiles and 30 portables. 15 mobiles are UHF and 25 portables are UHF.

#### 4. Interoperability

The Fire Department is equipped with VHF radio equipment and UHF radio to maximize interoperability communications with agencies. TABLE 2.1.8A shows the existing direct interoperability capabilities with other agencies for the department.



B. Positive Attributes of Current Environment

1. Operational

They like simple reliable portables that can be operated by feel, a safety position (locked) on radios, less rubber and plastic parts, and battery reconditioners.

2. Functional

The system as it operates today works very well.

3. Technical

The radio system is conventional technology using repeaters for wide area coverage. Primary communications is with the UHF radios, but VHF radios are used for additional communications capabilities.

C. Desired Attributes of Current and Future Environment

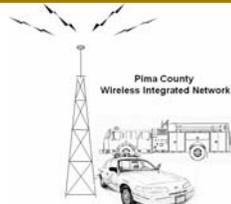
1. Operational

Would like a convenient way to radio monitor firefighter vital signs.

2. Functional

Would like a small short range intercom-type function. They would like a wireless link from the accessories to the radio on the belt.

3. Technical



4. Interoperability Matrix

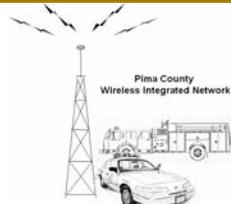
TABLE 2.1.8B shows the future direct interoperability requirements with other agencies for the department.

During major wild land fires including the Aspen Fire, Mt Lemmon reports the major Federal agencies that respond are the Department of Agriculture and Department of Wildlands. Generally, local companies receive radios and frequency assignment from Federal command.

The State Mutual Aid channels are heavily used during these incidents.

5. Attributes Matrix

Please refer to TABLE 2.1.8C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Rincon Valley Fire Department  
Mt. Lemmon Fire Department  
Green Valley Fire Department  
Drexel Heights Fire Department

**File Name:** - 030306 County Fire Department 1 Final doc.

**Date of Interview:** - March 03, 2006

**Location of Interview:** - Pima County Sheriff Department

**Persons Interviewed:** - Dennis Rankin, Captain, Mt. Lemmon FD  
Ken Shultz, Ops Captain, Green Valley FD  
Lee Buckley, Asst. Chief, Rincon Valley FD  
Steven Campbell, Bat, Chief, Drexel Heights FD

**CTA Interviewer:** - David Anderson, Senior Systems Engineer  
Roscoe Mitchell, Communications Specialist

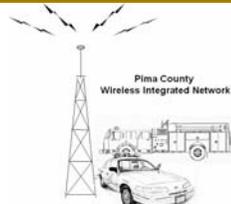
The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Mt. Lemmon Fire Department covers a 12.5 square miles area.
2. Drexel Heights Fire Department covers a 91 square miles area.

**Present Situation**

1. Rincon Valley Fire Department has two stations moving in June and building a third in the next two years. They have two UHF channels, one is repeated and one is simplex. They have a 65 foot monopole at the first station. Their call volume is up 57%, 1000 call volume a year with 85% to EMS and 15% to fire.



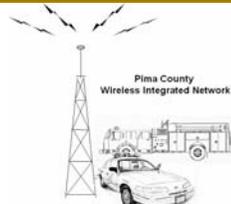
2. Mt. Lemmon Fire Department has two prime sites at Mt. Lemmon and Mt. Bigelow and one repeater at Loma Linda Tanks. They have three UHF simplex frequencies. They only do EMS calls and no transport of patients. They receive 300 calls a year with 80% EMS and 3% Fire.
3. Green Valley Fire Department has four Fire and EMS stations, but Southwest Ambulance does the transporting of patients to hospitals. They are dispatched by Drexel Heights, but switching to Rural Metro in July. They have two repeated frequencies and one simplex; La Canada Fire Station and Elephant Head. Record Management System is Emergency Reporting and mapping is a system from Mapping Solutions. Cox Cable is looking to use two stations as wireless points.
4. Drexel Heights Fire Department has four stations with UHF and VHF channels. They have two repeated channels and two simplex channels. The repeater is located at Beehive Peak. They receive about 6000 calls a year.
5. Preferred portable radios include Kenwood, Bendix King, and Icom.
6. Drexel Heights uses GEO 911 CAD (the same as Marana) and has a need for mobile data. They plan on using the GEO Mobile module over one channel of the IP MobileNet being put in by the City of Tucson. Their functionality goals include AVL and access to GIS information. Rincon FD is also going with IP Mobilenet.
7. Green Valley FD is installing in-vehicle mapping and AVL. Laptops in the truck will run "Mapping Solutions" software. Green Valley plans to equip with Wi-Fi since their area is partly within the Canamex corridor. Cox Communication's network will be involved with expanding the Canamex project.

**Present Problems**

1. Rincon Valley has coverage problems east of I-10 in the valley.

**Future Requirements**

1. Green Valley Fire Department is planning to build 3 Stations in the next 5 years.
2. Drexel Heights Fire Department would like to see UHF and VHF frequencies realigned for less interference. They would like to monitor the simplex frequencies.



3. They like simple reliable portables that can be operated by feel, a safety position (locked) on radios, less rubber and plastic parts, and battery reconditioners. They generally do not buy intrinsically safe models.
4. These departments are open to convenient ways to radio monitor firefighter vital signs. They would like a small short range intercom-type function. They would like a wireless link from the accessories to the radio on the belt.

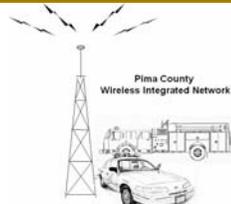
The draft of this record was sent to Captain Paul Wilson on March 31, 2006.

Corrected draft was returned to CTA Communications on April 5, 2006.

**Interviewee Name & Address:**

Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

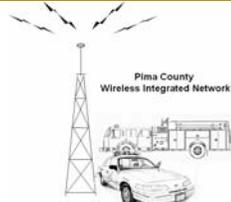
Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: MT. LEMMON FIRE DISTRICT  
Contact Name: DEAN BARNELLA Position: CHIEF  
Phone: 576 1201 Email: DEAN@MOUNTLEMMONSFIRE.COM

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

**I: RADIO UTILIZATION CURRENT SITUATION**

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	25				
Portables	30				
Control Stations					
Paging units					
Other Devices					

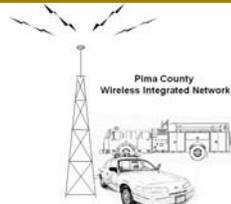
Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

15 MOBILES UHF 400MHZ  
 10 MOBILES VHF 150MHZ  
 25 PORTABLES UHF 400MHZ  
 5 PORTABLES VHF 150MHZ

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	2	YES
Water Tender	2	YES
Pumper/ Engine	2	YES
Ladder Truck		
Ambulance	3	YES
Patrol Vehicles		



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars	4	Yes
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

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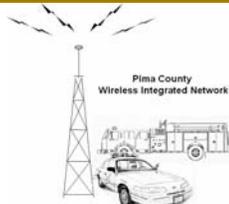
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d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**Clarifications:**

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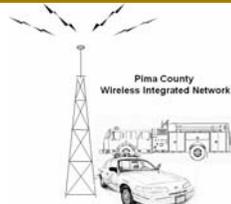


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**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
NO COVERAGE (RIOGUELLUES)		X				
DISPATCH RESPONSIVENESS		X				
RADIO INTERFERENCE		X				





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** Mount Lemmon Fire District

**Contact Name:** Dennis Rankin

**Position:** Captain

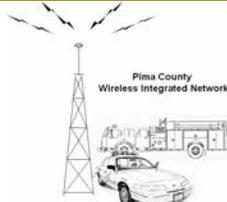
**Phone:** 520-576-1201

**Email:** dennis@mountlemmonfire.com

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

**I: RADIO UTILIZATION CURRENT SITUATION**

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	Shift 4
<b>Mobiles</b>	25					
<b>Portables</b>	30					
<b>Control Stations</b>						
<b>Paging units</b>						
<b>Other Devices</b>						

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

- 15 mobiles UHF400MHz
- 10 mobiles VHF 150MHz
- 25 portables UHF400MHz
- 5 portables VHF150MHz



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

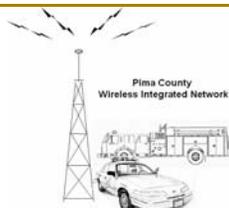
Radio Usage Information Survey  
 February 7, 2006

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	2	yes
Water Tender	2	yes
Pumper/ Engine	2	yes
Ladder Truck		
Ambulance	3	yes
Patrol Vehicles		
Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars	4	yes
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

e. Please list the talk-group or channel assignments for your radios.

Primary Talk groups or channel name	Other Talkgroups or channel name	Repeater or Simplex **	Surrounding city or county	Federal	Tribal
Mt Bigelow	460.600 **	Repeater	Pima		
Loma Linda	465.600 **	Repeater	Pima		
Talk Around	460.600	Simplex	Pima		
FireGround 1	460.375	Simplex	Pima		
FireGround 2	465.600	Simplex	Pima		
Meds CH 10	**	Repeater	Pima		
Meds CH 1		Repeater	Pima		
Meds CH 2		Repeater	Pima		
Meds CH 3		Repeater	Pima		
Meds CH 4		Repeater	Pima		
Meds CH 5		Repeater	Pima		
Meds CH 6		Repeater	Pima		
Meds CH 7		Repeater	Pima		
Meds CH 8		Repeater	Pima		
Meds CH 9		Repeater	Pima		

\* Designate the frequency band if known in the appropriate box.

\*\* A repeater channel is a channel that utilizes a tower; a simplex channel communicates radio to radio without the benefit of a tower repeater.

**Clarifications:**

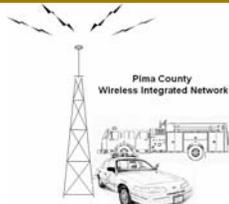
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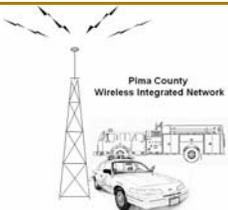


**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
No Coverage ridgelines		xxx				
dispatcher responsiveness		xxx				
radio interference		xxx				

- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.



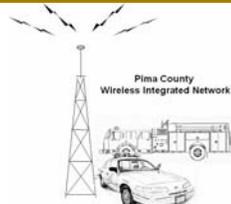
**Clarifications:**

A series of horizontal lines for providing clarifications, with a shaded vertical bar on the left side.

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	6	0	6	0
Portables	10	5	5	0
Control Stations				
Paging units	10	5	5	
Other Devices				



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

[Redacted area with horizontal lines for text entry]

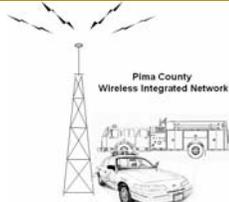
Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.                      Fax: (434) 239-9221  
P.O. Box 4579                                      Phone: (434) 239-9200  
Lynchburg, VA 24502-0579                      [PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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3. Mobile Data Survey

MT LEMMON FD - DISPATCH  
MD

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

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Organization/Agency Name: MOUNT LEMMON FIRE DISTRICT

Contact Name: Dean Renuella Position: CHIEF

Phone: 576-7201 Email: DEAN@MOUNTLEMMONFIRE.COM

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**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have: NONE

Age: N/A Condition: N/A Adequate?: N/A

Mobile data functions that you currently have and use:

Computer Aided Dispatch: \_\_\_\_\_ Name of CAD system: \_\_\_\_\_

Access to Records Management: \_\_\_\_\_ Name of RMS system: \_\_\_\_\_

Records functions available: \_\_\_\_\_

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_\_

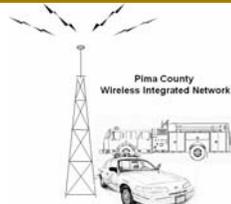
Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging: Car to car: \_\_\_\_\_ Car to dispatch: \_\_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_\_ State: \_\_\_\_\_ National: \_\_\_\_\_

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 Page 1 of 4



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

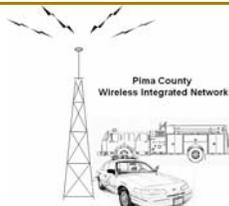
Problems or concerns with your current capabilities:

DEAD AREAS ON MOUNTAINS

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

CAD DISPATCH, AVL, DATABASE, MAPPING, PRE PLANS, RECORDS  
INFO SHARING, MESSAGING, DISPATCH DATA, CALL INFO, GET SYSTEM,  
LAP TOP EQUIPMENT



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (Data Tac, etc, # of channels, and frequency band): N/A

Commercial Service (Verizon, etc): Verizon

Wi-Fi: N/A

Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles					
Wireless Handhelds (PDA's)					
AVL equipped					
Digital Pagers	25		25%	10%	10%
Tone Voice Pagers					
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	1/day
Query (license checks, vehicle registrations, wanted persons, property checks)	N/A
Car-to-car or car-to-dispatch message	10/day
Status updates	100/day



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Emails	
Field Report	40/day
Other _____	1/day
Other _____	
Other _____	

Any additional comments or questions you have regarding mobile data:

\_\_\_\_\_

\_\_\_\_\_

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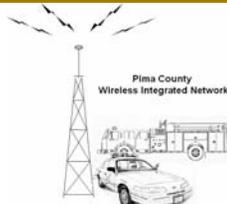
Please hand this survey in during your interview or return to:

CTA Communications, Inc.  
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Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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MT LEMMON FD - MD

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

4

CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Mount Lemmon Fire District

Contact Name: Dennis Rankin

Position: Captain

Phone: 520-576-1201

Email: dennis@mountlemmonfire.com

INSTRUCTIONS: Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

I: CURRENT SITUATION

Mobile data equipment do you currently have none

Age: N/A Condition: N/A Adequate: N/A

Mobile data functions that you currently have and use:

Computer Aided Dispatch: N/A Name of CAD system: N/A

Access to Records Management: N/A Name of RMS system: N/A

Records functions available: N/A

Field Reporting: N/A Automatic Vehicle Location (AVL): N/A

Email: N/A Outlook or web-based? N/A

Text Messaging: Car to car: N/A Car to dispatch: N/A

Query (Person, Vehicle, Property, etc) Local: N/A State: N/A National: N/A



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: N/A

Other software: N/A

Problems or concerns with your current capabilities:  
Dead Areas on mountain

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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**  
 (One administrator per agency or department should complete this section for the group.)

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): N/A

Commercial Service (Verizon, etc) : Verizon

Wi-Fi : N/A

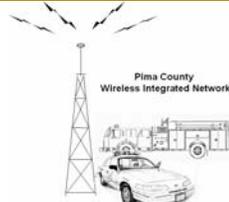
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles					
Wireless Handhelds (PDA's)					
AVL equipped					
Digital Pagers	25		15%	10%	10%
Tone Voice Pagers					
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	1/day
Query (license checks, vehicle registrations, wanted persons, property checks)	N/A
Car-to-car or car-to-dispatch message	10/day
Status updates	10/day
Emails	60/day





4. Computer Systems Checklist – Fire & EMS Departments

None.

5. Documentation Provided

- Fire Rescue frequency bands

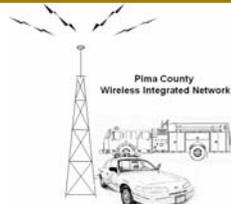


TABLE 2.1.8A Existing Interoperability

Mt. Lemmon Fire District		Mt. Lemmon Fire District		Mt. Lemmon Fire District	
Agency Types		Agency Types		Agency Types	
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives
	Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection
	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration
	Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security
	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation
	Elephant Head Vol. FD		Pima County Sheriff's Dept.	X	Immigration and Customs Enforcement
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service
	Green Valley Fire District		Sahuarita PD		Bureau of Land Management
	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife
	Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service
	Northwest Fire District		Tucson Airport Authority PD		U.S. Marshals Service
	Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety
	Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish
	Rincon Valley Fire District				
	Rural Metro Fire/Southwest Ambulance				
	South Tucson FD				
	Three Points FD				
	Tohono O' odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				

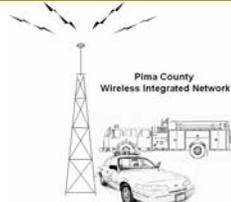
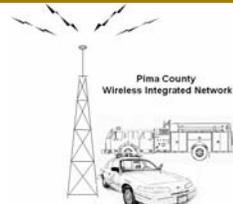


TABLE 2.1.8B Future Interoperability

Agency Types	Agency Types	Agency Types
Mt. Lemmon Fire District	Mt. Lemmon Fire District	Mt. Lemmon Fire District
Ajo/Gibson Vol. FD	Marana PD	Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD	Oro Valley PD	Customs and Border Protection
Avra Valley Fire District	Pascua Yaqui PD	Drug Enforcement Administration
Corona de Tucson Fire District	Pima College Dept. of Public Safety	Emergency Man. & Homeland Security
X Drexel Heights Fire District	Pima County OEM & Homeland Security	Federal Agencies
Elephant Head Vol. FD	X Pima County Sheriff's Dept.	Federal Bureau of Investigation
Golder Ranch Fire District	Pima County Sheriff's Dept. - Ajo	Immigration and Customs Enforcement
Green Valley Fire District	Sahuarita PD	National Park Service
Helmet Peak Fire District	South Tucson PD	Bureau of Land Management
Mt. Lemmon Fire District	Tohono O'odham Tribal Police	U.S. Fish & Wildlife
Northwest Fire District	Tucson Airport Authority	U.S. Forest Service
Pascua Pueblo FD	Tucson PD	U.S. Marshals Service
Picture Rocks Fire District	University of Arizona Police	X Arizona Dept. of Public Safety
Rincon Valley Fire District		Agencies
Rural Metro Southwest Ambulance		Arizona Game and Fish
South Tucson FD		
Three Points FD		
Tohono O'odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		



**TABLE 2.1.8C**  
**Mt. Lemmon Fire District**

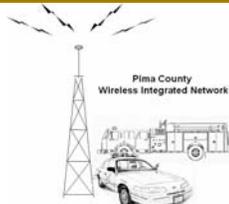
DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County		
2	Improved Voice Radio Coverage – Central County		
3	Improved Voice Radio Coverage – Western County		
4	In-building Coverage		
5	Minimize Local Interference		
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity		
7	On-scene Fire Channels		
8	Monitored Firegrounds		
9	Emergency Alerting		
10	Workgroup Oriented Operation		
11	Voice Security		
12	Operational Boundary Transparency		
13	One System Serves All Agencies		
14	Interoperability through Dispatch		
15	Interoperability with Adjacent Counties		
16	Interoperability with State Agencies		
17	Interoperability with Federal Agencies		
18	Person Location		
19	System Control		
20	Recorded Operations		
21	Simplified User Operations		
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity		
23	Dispatch Capacity		
24	Dispatch Coverage		
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies		
26	Cross CAD Interconnection		
27	Mobile Data Criticality		
28	Vehicle Location		
29	EMS Telemetry		
30	High-Speed Broadband Service		
31	Mobile Applications		
32	Advanced Mobile Applications		
33	Access County Information		
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging		
35	Fire Station Alerting		
36	Paging over Cellular		
<b>Infrastructure Capabilities</b>			
37	Future Expansion		
38	Owner-Controlled Backbone		
39	Microwave Connectivity		
40	Microwave Additional Capacity		
41	Regional Connectivity		
<b>Reliability and Availability</b>			
42	Survivability		
43	Reliability/Failure Hierarchy		
44	Single Points of Failure		
45	Power Backup		
<b>Training and Maintenance</b>			
46	Staffing and Training		
47	Centralized Maintenance		
<b>Cost and Procurement</b>			
48	Competitive Procurement Process		



**TABLE 2.1.8C**  
**Mt. Lemmon Fire District**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
49	Commonality of Equipment		
50	Multiple Sources		
51	Phased Implementation		
52	Tiered Subscriber Cost		

**Ranking Scale:**  
 0 - Attribute is NOT IMPORTANT to the user.  
 1 - Attribute is MINIMALLY IMPORTANT to the user.  
 2 - Attribute is NICE TO HAVE, could enhance operations.  
 3 - Attribute is USEFUL, will promote more efficient day to day operation.  
 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property.  
 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.



2.1.9 Northwest Fire Consortium - Avra Valley, Golder Ranch, Northwest, Picture Rocks, and Three Points Fire Departments

A. Current Environment

1. Operational

The Northwest fire consortium consists of the Avra Valley, Golder Ranch, Northwest, Picture Rocks, and Three Points fire departments. Northwest Fire is the consortium lead. CTA understands that the contract establishing Northwest Fire as the lead may be in question. Green Valley Fire may be involved with a new contract agreement.

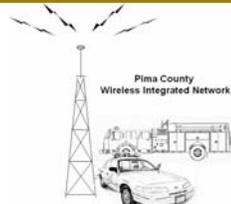
The NW Fire Districts are dispatched by the City of Tucson at the Tucson Fire dispatch facility. CAD will automatically dispatch units unless it is a Mutual Aid call in which a fire chief will dispatch the units.

The management of 911 calls is complicated due to the interaction of multiple agencies and the procedures that are followed at dispatch. This issue is compounded when a 911 call is made from a cell phone.

2. Functional

Avra Valley District is headquartered at 15790 W Silverbell Rd in Marana, AZ. There are three Stations 34, 36, and 37 in Marana.

Golder Ranch District is headquartered at 3535 E Hawser St. Tucson, AZ 85739. There are three stations. They are located at 1 63735 E. SaddleBrooke, 1130 E. Rancho Vistoso, and 3535 East Hawser (HQ).



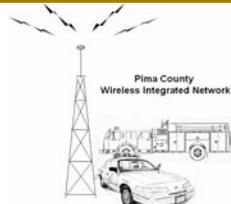
Total Golder Ranch Fire District Coverage Area: 72 square miles  
Total Golder Ranch Fire District Population: 35,000  
Total Golder Ranch Medical / Ambulance Coverage Area: 346+ square miles

The Northwest Fire District Headquarters is located on 5225 W. Massingale Rd in Tucson, AZ 85743. There are eight 24/7 manned stations. The Northwest District currently provides emergency and community services to 114,000 residents and 1900 commercial occupancies over a 140 square mile area. In addition to fire protection, paramedic-equipped units are stationed throughout the District and provide advanced life support to medical calls. The Fire Department has a contract with Southwest Ambulance Services for emergency medical services. Fire Stations include:

Station 30 – 1520 W Orange Grove Rd  
Station 31 – 4701 N La Cholla  
Station 32 – 4151 W El Camino del Cerro  
Station 33 – 3701 W Quasar  
Station 34 – 8165 N Wade Rd  
Station 35 – 3220 N Camino de Oeste  
Station 36 – 13475 N Marana Main St  
Station 37 – 13001 N Tortolita Rd  
Future 38 – Starr Grass/Cortaro Farms  
Future 39 – Thornydale/Moore  
Future 40 – Linda Vista/ I-10  
Future 41 – Marana NW Regional Airport  
Future 42 – Tangerine/ I-10

Picture Rocks Fire District is headquartered at 12121 W Picture Rocks Rd. Tucson, AZ 85743-9722.

Three Points Fire District is headquartered at 1200 S. Sierrita Mountain Road PMB #328.



This District provides fire, emergency and community services to 8,900 area residents covering over 206 square miles. Geographical boundaries encompass the community of Three Points, also known as Robles Junction.

The boundaries begin on the North at Mile Wide Road and continue South to approximately milepost 25 of State Highway 286 and extend to the East at Ryan Airfield and to the West at the intersection of State Highway 86 (approximately milepost 141) and Coleman Road.

Fire Station 91 – 14055 West Hunt Rd

Fire Station 92 – 11777 West Camino Lucito

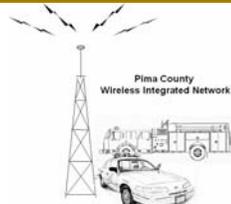
Fire Station 93- 10351 S. Sasabe Highway

There is co-channel interference at times from the Phoenix / Mesa area. Occasionally the audio can be interfered with from dispatch. The interference could be the result of crosstalk or misrouting through the system.

Many of the departments expressed concern about poor coverage; in general the more remote areas of the county were the ones that experienced the poorest coverage.

### 3. Technical

The consortium uses a series of 16 VHF frequencies, 2 are repeaters and several RX voter sites. There is a plan in place to expand to 3 repeaters and 7 simplex channels. All repeaters operate analog wide-band – 25 kHz. Mobiles and portables are Project 25 compliant radios. The migration to 12.5 KHz narrow band channels has begun and should be completed by June 30, 2006.



Point to point connectivity is supplied at every station by Redline 5.4 GHz systems. 802.11., 4.9 GHz hotspots provide broadband service around the stations in NWFD area only.

There are two IP MobileNet base stations that have been added to the City of Tucson systems three base stations for a total of five to provide mobile data service. These stations operate in the 700/800 MHz band. iCare Mobility determines the appropriate wireless data connection. Itronix notebooks are currently being deployed in apparatus and vehicles.

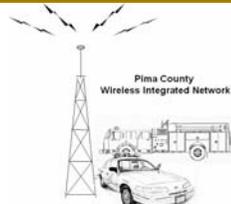
Station notifications and dispatching calls are conducted through VHF radios. All stations are equipped with desktop radios.

The City of Tucson manages the CAD system (ADSi) and individual fire groups handle their own RMS (FIREHOUSE).

#### 4. Interoperability

TABLE 2.1.9A shows the existing direct interoperability capabilities with other agencies for the fire departments.

Dispatching and medical communications take place on the repeated channels. On scene fire ground communications take place over the simplex channels. All trucks are equipped with VHF and UHF radios to facilitate communications with other agencies like the Tucson Police. Two trucks are currently equipped to act as mobile repeaters to assist with communications on scene.



B. Positive Attributes of Current Environment

1. Operational

2. Functional

Each of the fire districts have reliable VHF repeater systems though the districts will benefit from improving and expanding upon the repeater systems to improve coverage in their service areas.

3. Technical

The mobile data systems are being upgraded. The MTC's currently in use are the KDT480 mobile data terminals. These terminals will be replaced by the Itronix notebooks.

C. Desired Attributes of Current and Future Environment

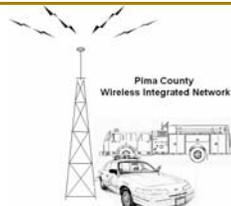
1. Operational

A system that facilitates improved coordination of 911 calls and easier interoperability capabilities with other agencies.

2. Functional

The fire districts will benefit from system upgrades to mesh into a wide area network that improves reliability and allows fire fighters and EMS responders to roam throughout their service area without having to manually change channels.

Many department expressed concern about coverage.



3. Technical

The new system needs to be reliable and have flexibility to migrate towards a wide-area trunked simulcast system that operates in the VHF band but can be networked together with a system utilizing another frequency band. Radios should offer technology features such as improved performance, and AVL/ GPS location capabilities.

Newer Project 25 capable radios with additional features are needed to replace existing units.

Mobile data technology and Mobile Terminal Computers in vehicles that can access local FIREHOUSE Record Management Systems and the City of Tucson's CAD system is needed in the near future.

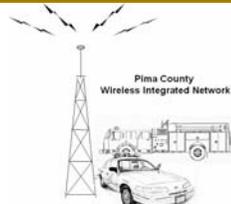
Tracking AVL or GPS based technologies and video capability for apparatus in the field is important.

4. Interoperability Matrix

TABLE 2.1.9B shows the future direct interoperability requirements with other agencies for the fire departments.

5. Attributes Matrix

Please refer to TABLE 2.1.9C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: - Northwest, Three Points, Golder Ranch, Picture Rocks Avra Valley Fire Departments

File Name: - 030206NW-AreaFireDepartmentsFINAL.doc

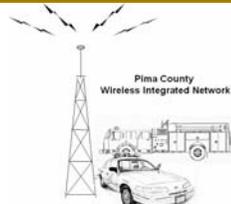
Date of Interview: - March 2, 2006

Location of Interview: - Pima County Sherriff's Office  
1750 E. Benson Highway  
Tucson, Arizona 85714

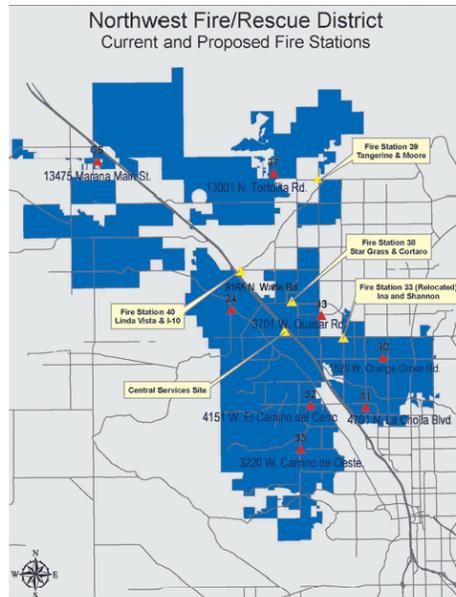
Persons Interviewed: - John Williams, Fire Chief – Three Points Fire Department  
Chris Anthis, Three Points Fire Department  
Pat Abel, Golden Ranch Fire Department  
Andy Smith, Golden Ranch Fire Department  
Ernie Robles, Picture Rocks Fire Department  
Kathy Stewart, Picture Rocks Fire Department  
Matt Janton, Northwest Fire  
Mike Sacco, Pima County Sheriff's Office

CTA Interviewers: - Harry Rote, Senior Systems Engineer  
Gary Mountcastle, Senior Communications Specialist

The following points were conveyed to CTA during this interview on the following page:



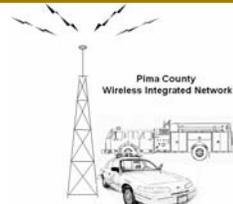
Organization and Responsibilities



1. The Northwest fire consortium consists of the Avra Valley, Golder Ranch, Northwest, Picture Rocks, and Three Points fire departments.
2. Northwest Fire is the consortium lead. Headquarters is located on 5225 W. Massingale Rd in Tucson, AZ 85743. There are eight 24/7 manned stations.

The Northwest District currently provides emergency and community services to 114,000 residents and 1900 commercial occupancies over a 140 square mile area. In addition to fire protection, paramedic-equipped units are stationed throughout the District and provide advanced life support to medical calls. The Fire Department has a contract with Southwest Ambulance Services.

3. Station 30 – 1520 W Orange Grove Rd  
Station 31 – 4701 N La Cholla  
Station 32 – 4151 W El Camino del Cerro  
Station 33 – 3701 W Quasar  
Station 34 – 8165 N Wade Rd  
Station 35 – 3220 N Camino de Oeste



Station 36 – 13475 N Marana Main St  
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Future 38 – Starr Grass/Cortaro Farms  
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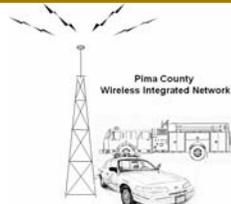
Present Situation

1. NW Fire Districts are dispatched by the City of Tucson at the Tucson Fire dispatch facility. CAD will automatically dispatch units unless it is a Mutual Aid call in which a fire chief will dispatch the units.
2. Avra Valley District is headquartered at 15790 W Silverbell Rd in Marana, AZ. There are three Stations 34, 36, and 37 in Marana (listed above).
3. Golder Ranch District is headquartered at 3535 E Hawser St Tucson, AZ 85739. There are three stations. They are located at 1 63735 E. SaddleBrooke, 1130 E. Rancho Vistoso, and 3535 East Hawser (HQ).

Total Fire District Coverage Area: 72 square miles  
Total Fire District Population: 35,000  
Total Medical / Ambulance Coverage Area: 346+ square miles

4. Northwest – see above
5. Picture Rocks Fire District is headquartered at 12121 W Picture Rocks Rd Tucson, AZ 85743-9722. There are two Fire District identifiers Loc 1 & 2 with lat/ long. CTA would like to identify them better.
6. Three Points Fire Department is headquartered at 1200 S. Sierrita Mountain Road PMB #328.

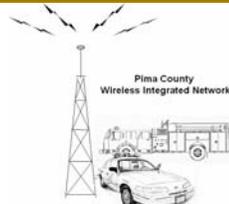
The District provides fire, emergency and community services to 8,900 area residents covering over 206 square miles. Geographical boundaries encompass the community of Three Points, also known as Robles Junction.



The boundaries begin on the North at Mile Wide Road and continue South to approximately milepost 25 of State Highway 286 and extend to the East at Ryan Airfield and to the West at the intersection of State Highway 86 (approximately milepost 141) and Coleman Road.

Fire Station 91 – 14055 West Hunt Rd  
Fire Station 92 – 11777 West Camino Lucito  
Fire Station 93- 10351 S Sasabe Highway

7. There are 16 VHF frequencies, 2 are repeaters and several RX voter sites. The plan is to migrate to 3 repeaters and 7 simplex channels. All repeaters operate analog wide-band – 25 kHz. Mobiles and portables are Project 25 radio compliant radios. A list of operating frequencies has been provided. The migration to 12.5 KHz narrow band channels has begun and should be completed by 6/30/06.
8. Point to point connectivity is supplied at every station by Redline 5.4 GHz systems. 802.11., 4.9 GHz hotspots provide broadband service around the stations in NWFD area only.
9. Two IP MobileNet base stations have been added to the City of Tucson systems three base stations for a total of five to provide mobile data service. These stations operate in the 700/800 MHz band.
10. iCare Mobility determines the appropriate wireless data connection. Itronix notebooks are currently being deployed in apparatus and vehicles.
11. Dispatching and medical communications take place on the repeated channels. On scene fire ground communications take place over the simplex channels.
12. All trucks have VHF and UHF radios. Two trucks are currently equipped to act as mobile repeaters.
13. Station notification is conducted through RF. All stations are equipped with desktop radios.
14. The City of Tucson manages the CAD system (ADSi) and individual fire groups handle their own RMS (FIREHOUSE).

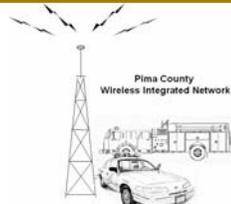


Present Problems

1. Coverage – Many of the departments expressed concern about poor coverage in their areas of responsibility. These areas were outlined by the agencies on a map provided by CTA. In general, the more remote areas of the county were the ones that experienced the poorest coverage.
2. 911 – The handling of 911 calls can be a convoluted process due to the interaction of multiple agencies and the procedures that are followed at dispatch. This can become even more complicated when a 911 call is made from a cell phone.
3. Mobile Data – Currently using KDT480 mobile data terminals. These terminals will be replaced by the Itronix notebooks.
4. Interference – Co-channel interference can be experienced at times from the Phoenix / Mesa area. Occasionally the audio can be interfered with from dispatch. The interference could be the result of crosstalk or misrouting through the system.

Future Requirements

1. Upgrade quality / quantity of mobile and portable units.
2. Enhanced and expanded coverage throughout areas of responsibility.
3. Flexibility to migrate operations to trunking system environment if it meets the consortiums' requirements.
4. Better coordination of 911 call handling.
5. Better interoperability with other agencies.
6. Video feed capability to and from mobile units.
7. AVL capabilities and reporting from mobile units.
8. Future Station IDs have been identified but CTA does not have the locations – Station 112,114, 116, Willow Springs, Saddlebrook Road).

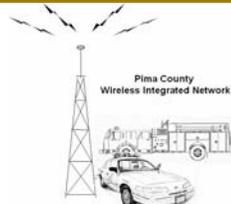


The draft of this record was sent to Matt Janton on March 29, 2006.

Corrected draft was returned to CTA Communications on 4/5/06 Matt Janton.

Matt Janton  
Northwest Fire  
mjanton@northwestfire.org

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\030206NW-AreaFireDepartmentsFINAL.doc



## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** Arva Valley Fire District

**Contact Name:** Tom Nix

**Position:** Battalion Chief

**Phone:** 520-682-3255

**Email:** tnix@avfire.org

---

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	Shift 4
<b>Mobiles</b>	25	15	15	15		
<b>Portables</b>	36	11	11	11		
<b>Control Stations</b>	3	3	3	3		
<b>Paging units</b>	40					
<b>Other Devices</b>						

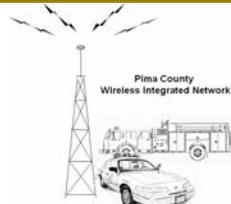
Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

25 mobiles total, 4 operate in UHF

all portables operate in VHF

5 pagers are voice pagers, remaining are alpha numeric

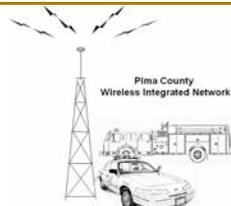



c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	2	yes
Water Tender	1	yes
Pumper/ Engine	3	yes
Ladder Truck		
Ambulance	4	yes
Patrol Vehicles		
Jail Transport		
Special Ops	1	yes
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars	3	yes
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

**Clarifications:**

Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
15790 W. Silverbell	1	call notification
6801 N. Anway	1	call notification
30300 W. Amber Sunrise	1	call notification

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

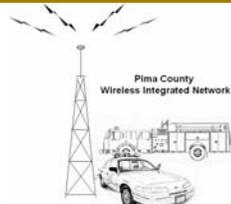
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_





**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Radio bleedover from Mesa F-2					X	
Coverage area F-1, F-3						X
Inter-Operability with law enforcement and outside agencies		X				

- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

Addition of CAD and vehicle locaters


Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Goldier Ranch Fire Dist.  
Contact Name: Andy Smith Position: Comms. Officer  
Phone: 815-9378 Email: asmith@goldieranchfire.org

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

**I: RADIO UTILIZATION CURRENT SITUATION**

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	
Mobiles	40 = VHF P25	19 = UHF wideband				
Portables	74 = VHF P25	6 = UHF P25	8 = VHF wideband	2 = UHF wideband		
Control Stations	4 = VHF wideband		4 = VHF P25	3 = VHF wideband		
Paging units						
Other Devices						

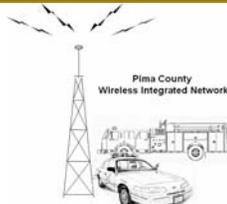
Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

In Control Stations 4 VHF widebands are for Station Alerting, the other 3 are currently being used as voters. The 4 VHF P-25 are to replace the wide-bands.

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	4	Y
Water Tender	4	Y
Pumper/ Engine	7	Y
Ladder Truck	2	Y
Ambulance	6	Y
Patrol Vehicles		



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

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Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks ~ Equipment truck	1	Y
Highway Maintenance		
Vans	1	Y
Buses		
Cars		
Other (Please Describe) Admin/Command	10	Y

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

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\_\_\_\_\_

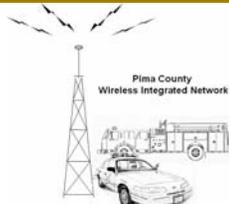
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\_\_\_\_\_

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
* 3535 E. Hawser - 110	1	Station Alerting
63735 E. Sordlebraake - 113	1	" "
* 1130 E. Rancho Vistoso - 114	1	" "
* 12125 N. Woodburne - 115	1	" "





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

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 February 7, 2006

**Clarifications:**

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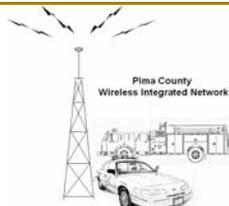
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**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Interference (MSA/PHX, ALEA)			X			
Rate good Simplex dispatch to Field Command				X		





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	12	10		
Portables	18	12		
Control Stations	3	2		
Paging units				
Other Devices				

**Clarifications:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Thank you for your assistance.

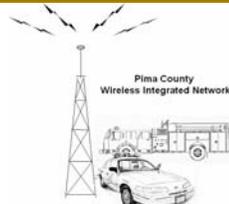
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
 P.O. Box 4579  
 Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
 Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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4

CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Northwest Fire/Rescue

Contact Name: Matt Janton

Position: Captain

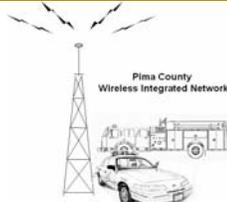
Phone: 520-887-1010

Email: mjanton@northwestfire.org

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
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Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2		Shift 3	Shift 4
Mobiles	90					
Portables	140					
Control Stations	1					
Paging units	70					
Other Devices						

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

45 VHF mobiles, 45 UHF mobiles

110 VHF portables, 30 UHF portables

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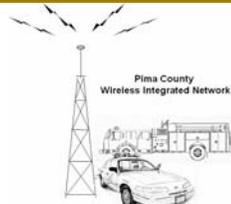
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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	6	yes
Water Tender	3	yes
Pumper/ Engine	11	yes
Ladder Truck	2	yes
Ambulance	4	yes
Patrol Vehicles	0	
Jail Transport	0	
Special Ops	19	yes
Vehicular Repeaters *	0	
Disposal Collector	0	
Maintenance Truck	0	
Utility Trucks	0	
Highway Maintenance	0	
Vans	0	
Buses	0	
Cars	0	
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

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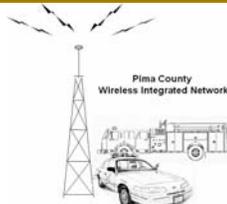
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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
4004 S Park Ave	4	Dispatch

Clarifications:

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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

e. Please list the talk-group or channel assignments for your radios.

Primary Talk groups or channel name	Other Talkgroups or channel name	Repeater or Simplex **	Surrounding city or county	Federal	Tribal
1	Medical	Rpt	County		
2	Disoatch	Rpt	County		
3	NW FG	Sim	County		
4	Area Fg	Sim	County		
5	Mutual Aid	Sim	County		
6	GR FG	Sim	County		
7	Pinal FG	Sim	County		
8	Avra Fg	Sim	County		
9	PR Fg	Sim	County		
10	TP Fg	Sim	County		

\* Designate the frequency band if known in the appropriate box.  
 \*\* A repeater channel is a channel that utilizes a tower; a simplex channel communicates radio to radio without the benefit of a tower repeater.

Clarifications:  
 48 channels are programmed in the radios



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Inability to talk with other agencies	<input type="checkbox"/>	<input checked="" type="checkbox"/>				
	<input type="checkbox"/>					
	<input type="checkbox"/>					
	<input type="checkbox"/>					
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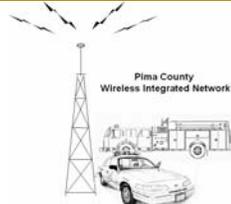




Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	+10	+15	+15	+15
Portables	+40	+40	+40	+40
Control Stations	+1	0	0	0
Paging units	+20	+20	+20	+20
Other Devices				



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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Clarifications:

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Thank you for your assistance.

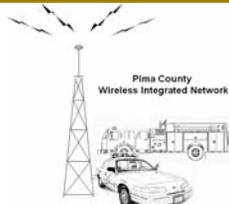
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Picture Rocks Fire District

Contact Name: Ernie Robles Position: Captain

Phone: 520 682 7878 Email: PR67EDAWG@MSN.COM

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

**I: RADIO UTILIZATION CURRENT SITUATION**

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	41	7	7	7	6
Portables	33	5	5	5	3
Control Stations	1	1	1	1	0
Paging units	25	5	5	5	3
Other Devices					

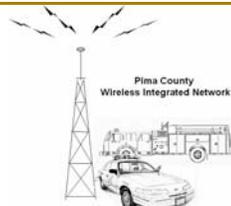
Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

41 MOBILES TOTAL 9 ARE UHF  
 1 CONTROL STATION IS THE STATION PKG.

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	2	YES
Water Tender	3	YES
Pumper/ Engine	3	YES
Ladder Truck	0	
Ambulance	3	YES
Patrol Vehicles	0	



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

Jail Transport			
Special Ops			
Vehicular Repeaters *			
Disposal Collector			
Maintenance Truck			
Utility Trucks			
Highway Maintenance			
Vans			
Buses			
Cars			
Other (Please Describe)	COMMAND STAFF	3	YES

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

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\_\_\_\_\_

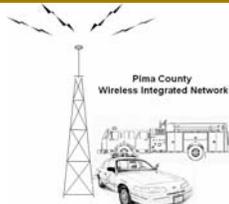
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d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
6625 N. SANDARIO RD.	1	HOUSE PACKAGE



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**Clarifications:**

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e. Please list the talk-group or channel assignments for your radios.

Primary Talk groups or channel name	Other Talkgroups or channel name	Repeater or Simplex **	Surrounding city or county	Federal	Tribal
F-1 MEDICAL	NWFD-F1				
F-2 DISP.	NWFD-F2				
F-3	NWFD-F3				
F-4	NWFD-F4				
F-5	MUTUALRID				
F-6	GRFD				
F-7	GRFD				
F-8	AVFD				
F-9	AVFD				
F-10	PRFD F2				
F-11	TPFD				
F-12	CAFEWAY				
F-13	RMFD F2				
F-14	RMFD F4				
F-15	RMFD F5				
F-16	SARVA				

\* Designate the frequency band if known in the appropriate box.

\*\* A repeater channel is a channel that utilizes a tower; a simplex channel communicates radio to radio without the benefit of a tower repeater.







Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles				
Portables				
Control Stations				
Paging units				
Other Devices				

**Clarifications:**

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Thank you for your assistance.

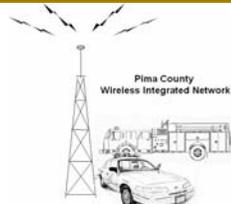
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
 P.O. Box 4579  
 Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
 Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Three Points Fire District

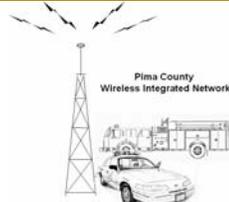
Contact Name: W. John Williams Position: Chief

Phone: 520-822-1086 Email: johnwilliams@threepointsfire.org

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

**I: RADIO UTILIZATION CURRENT SITUATION**

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	
Mobiles	32	10	10	10		
Portables	36	1	1	1		
Control Stations	0					
Paging units	26					
Other Devices						

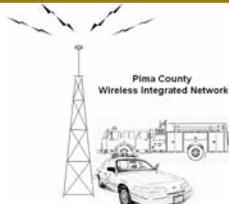
Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

32 mobiles total - 20 VHF 12 UHF  
 36 portables total 32 VHF 4 UHF

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	2 24 VHF	Y
Water Tender	6 6 VHF	Y
Pumper/ Engine	3 8	Y
Ladder Truck	0 1	
Ambulance	3 6	Y
Patrol Vehicles	3 10	Y



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars		
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

**Clarifications:**

*PATROL VEHICLES ARE OUR COMMAND VEHICLES*

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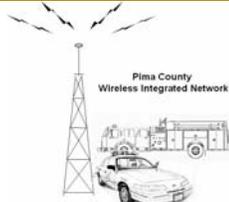
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d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**Clarifications:**

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\_\_\_\_\_

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**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Radio coverage						✓
RADIO INTERFERENCE					✓	



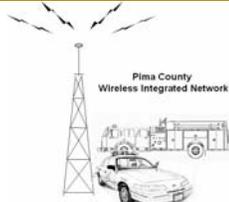
Pima County, Arizona  
Wireless Integrated Network (PCWIN)

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- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.

**Clarifications:**

*very poor coverage in area. Our repeater only stays open for 8 seconds after that the closest repeater is 30 miles away until dispatch opens our repeater again.*



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	15%	20%	20%	20%
Portables	25%	25%	25%	50%
Control Stations				
Paging units	25%	25%	25%	50%
Other Devices				

Clarifications:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Thank you for your assistance.

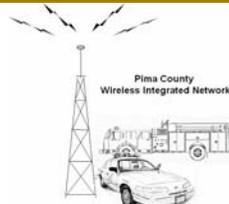
Please hand this survey in during your interview or return to:

CTA Communications, Inc.  
 P.O. Box 4579  
 Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
 Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\PCWIN Radio Usage Survey.DOC



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Avra Valley Fire District

Contact Name: Tom Nix

Position: Battalion Chief

Phone: 520-682-3255

Email: tnix@avfire.org

INSTRUCTIONS: Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

#### I: CURRENT SITUATION

Mobile data equipment do you currently have \_\_\_\_\_

Age: \_\_\_\_\_ Condition: \_\_\_\_\_ Adequate: \_\_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: no Name of CAD system: \_\_\_\_\_

Access to Records Management: yes Name of RMS system: Fire Soft

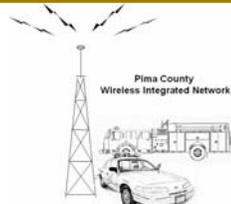
Records functions available: yes

Field Reporting: no Automatic Vehicle Location (AVL): no

Email: yes Outlook or web-based? both

Text Messaging: Car to car: no Car to dispatch: no

Query (Person, Vehicle, Property, etc) Local: no State: no National : no



Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

CAD

Avl

Upgrade equipment current equipment to p-25 compliant

purchase of equipment to enhance communications in dead areas

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**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): unknown

Commercial Service (Verizon, etc) : Verizon

Wi-Fi : no

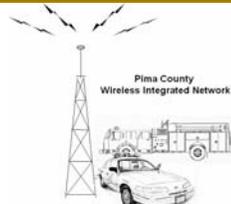
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	0		15		
Wireless Handhelds (PDA's)					
AVL equipped	0		15		
Digital Pagers	30		60		
Tone Voice Pagers	5		10		
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	
Query (license checks, vehicle registrations, wanted persons, property checks)	
Car-to-car or car-to-dispatch message	
Status updates	
Emails	100 per day





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Goldier Ranch Fire Dist.  
Contact Name: Andy Smith Position: Comms. Officer  
Phone: 825-9378 Email: asmith@goldiercranchfire.org

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have: None

Age: \_\_\_\_\_ Condition: \_\_\_\_\_ Adequate?: \_\_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: \_\_\_\_\_ Name of CAD system: \_\_\_\_\_

Access to Records Management: \_\_\_\_\_ Name of RMS system: \_\_\_\_\_

Records functions available: \_\_\_\_\_

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_\_

Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging: Car to car: \_\_\_\_\_ Car to dispatch: \_\_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_\_ State: \_\_\_\_\_ National: \_\_\_\_\_



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

\_\_\_\_\_  
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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

*we desire CAD function to include records, mapping  
and p/c planning info. ~~AVL~~ AVL is also desired*

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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

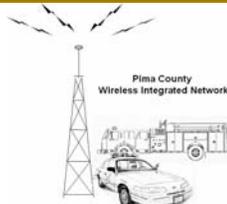
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles		10	20		
Wireless Handhelds (PDA's)					
AVL equipped		14	22		
Digital Pagers					
Tone Voice Pagers	6				
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions	
	per hour	or per day
CAD Dispatch		17 per day
Query (license checks, vehicle registrations, wanted persons, property checks)		
Car-to-car or car-to-dispatch message		10 per day
Status updates		50 per day





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Northwest Fire/Rescue

Contact Name: Matt Janton

Position: Captain

Phone: 520-887-1010

Email: mjanton@northwestfire.org

INSTRUCTIONS: Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

I: CURRENT SITUATION

Mobile data equipment do you currently have KDT480

Age: Antique Condition: poor Adequate: No

Mobile data functions that you currently have and use:

Computer Aided Dispatch: Yes Name of CAD system: ADSi

Access to Records Management: Yes Name of RMS system: FireHouse

Records functions available: \_\_\_\_\_

Field Reporting: Not yet Automatic Vehicle Location (AVL): Yes

Email: Yes Outlook or web-based? Outlook

Text Messaging: Car to car: yes Car to dispatch: yes

Query (Person, Vehicle, Property, etc) Local: No State: No National : No



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
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Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

Very limited currently. Construction is under way on a IPmobileNet system with the City of Tucson that will provide in vehicle mapping, AVL, data updates and messaging.

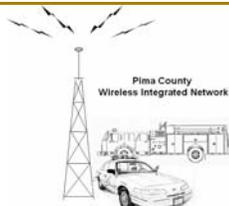
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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

Our deployment of the IPmobileNet system will address our need for mobile mapping, address location and AVL. The data connection will allow us to access our exchange email from the field. Our messaging capabilities with other agencies will be email or text based.

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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): IPMobileNet 800MHz

Commercial Service (Verizon, etc) : three Verizon Aircards

Wi-Fi : district wide 802.11 and 4.9

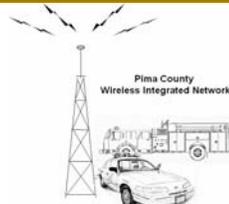
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	50				
Wireless Handhelds (PDA's)	30				
AVL equipped	50				
Digital Pagers	140				
Tone Voice Pagers	60				
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	60-70 per day
Query (license checks, vehicle registrations, wanted persons, property checks)	0
Car-to-car or car-to-dispatch message	20 -30 per day





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

4

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: PICTURE ROCKS FIRE DISTRICT  
Contact Name: ERNEST POLES Position: CAPTAIN  
Phone: 620 682 7878 Email: PR67EDAWG@MSN.COM

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have: NONE  
Age: \_\_\_\_\_ Condition: \_\_\_\_\_ Adequate?: \_\_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch:  Name of CAD system:   
Access to Records Management:  Name of RMS system:   
Records functions available:   
Field Reporting:  Automatic Vehicle Location (AVL):   
Email:  Outlook or web-based?   
Text Messaging: Car to car:  Car to dispatch:   
Query (Person, Vehicle, Property, etc) Local:  State:  National:



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

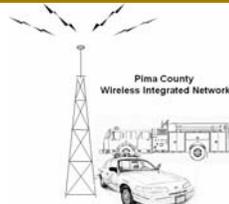
Problems or concerns with your current capabilities:

With no system  
WE HAVE NO PROBLEMS  
OR CONCERNS.

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

I would like to see our units with  
MOBILE DATA SYSTEMS (CAD, AVL etc) ALONG  
with the ability for info sharing.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc): DIGITAL PAGING (VERIZON)

Wi-Fi: \_\_\_\_\_

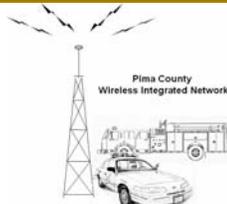
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	Currently in service		USAGE		
	On Hand	Un-met Needs	Estimated Future Needs (use either number of units or % growth)		
			2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	0		5	7	
Wireless Handhelds (PDA's)	0		6	9	
AVL equipped	0		6	9	
Digital Pagers	25				
Tone Voice Pagers	0				
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	50-60 TIMES A DAY
Query (license checks, vehicle registrations, wanted persons, property checks)	
Car-to-car or car-to-dispatch message	
Status updates	





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: THREE POINTS FIRE DIST  
Contact Name: W JOHN WILLIAMS Position: FIRE CHIEF  
Phone: (520) 822-1086 Email: LUCKYJAKE@AOL.COM

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have: Ø  
Age: \_\_\_\_\_ Condition: \_\_\_\_\_ Adequate?: \_\_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: X Name of CAD system: \_\_\_\_\_  
Access to Records Management: X Name of RMS system: \_\_\_\_\_  
Records functions available: YES  
Field Reporting: NO Automatic Vehicle Location (AVL): NO  
Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_  
Text Messaging: Car to car: NO Car to dispatch: NO  
Query (Person, Vehicle, Property, etc) Local: NO State: NO National: NO



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

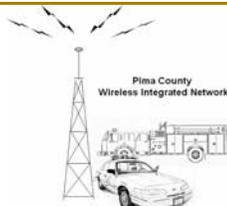
Problems or concerns with your current capabilities:

DUE TO EXTENT/RANGE RF HAS TO TRAVEL TO UNITS IN SOUTH -  
AUDIO/SIGNAL IS POOR; TACTICAL CHANNEL CAN BE SPOTTY  
BACK TO DISPATCH;

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

MDT'S IN FIRST LINE UNITS AND COMMAND/STAFF VEHICLES.  
HANDHELD FIELD REPORTING UNITS FOR MEDICAL, FIRE, AND  
FIRE PREVENTION ACTIVITIES. CAD UNIT THAT RECOGNIZES  
AUTO AID AGREEMENTS AS WELL AS, GDSSET UNIT.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

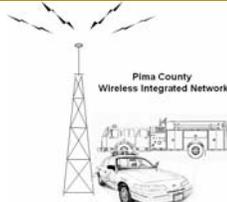
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles			10		
Wireless Handhelds (PDA's)			10		
AVL equipped			15		
Digital Pagers			30		
Tone Voice Pagers					
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions	
	per hour	or per day
CAD Dispatch	.5	3/4
Query (license checks, vehicle registrations, wanted persons, property checks)	∅	∅
Car-to-car or car-to-dispatch message	2	10
Status updates	∅	∅





#### 4. Computer Systems Checklist – Fire & EMS Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Fire and EMS Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Fire and EMS Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

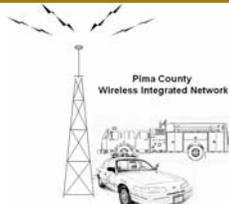
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

**Fire and EMS Department Checklist**

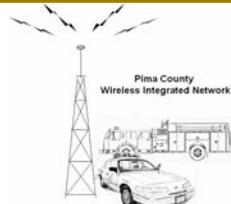
- 1) Department Name Avra Valley Fire District
- 2) Contact Name Tom Nix
- 3) Contact Telephone Number 520-682-3255
- 4) Primary Response Area Township 13 S, North to Township 11S R9E east to R10E. T 10S north to Township 9S R 9E to R 11E  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 27 5 Year Growth 80
- 6) Number of Fire Trucks and/or Engines  
Current 4 5 Year Growth 7
- 7) Number of Rescue and/or EMS response vehicles  
Current 4 5 Year Growth 8
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
Description hazmat/rescue  
Current 1 5 Year Growth 1  
Description Aerial  
Current 0 5 Year Growth 1



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

- Description Command
- Current 0 5 Year Growth 1
- 9) Number of Fire or EMS stations
- Current 3 5 Year Growth 5
- 10) Number of Fire and/or Response Zones
- Current 3 5 Year Growth 5
- 11) Number of Fire runs per year
- Current 486 5 Year Growth 100
- 12) Number of EMS responses per year
- Current 1566 5 Year Growth 5000
- 13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.)
- Current 1000 5 Year Growth 3000
- 14) Number of calls (included above) that are out of your District/Jurisdiction.
- Current 200 5 Year Growth 1000
- 15) Number of calls (included above) that are out of Pima County.
- Current 400 5 Year Growth 1000
- 16) Number of calls (included above ) that are out of Arizona.
- Current 10 5 Year Growth 50
- 17) Number of HAZMAT pre-plans



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

Current 30 5 Year Growth 200

18) Number of structure and location pre-plans

Current 58 5 Year Growth 200

19) Number of Move-up Plans

Current 3 5 Year Growth 10

20) Number of fire hydrants

Current 75 5 Year Growth 400

21) Number of Mobile Data terminals

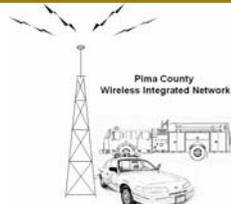
Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_

22) Number of Station Computers or others that would log-on to the network

Current 7 5 Year Growth 15

23) Number of personnel that would require an individual log-on password

Current 30 5 Year Growth 80



**Provisions of NFPA 1221**  
**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

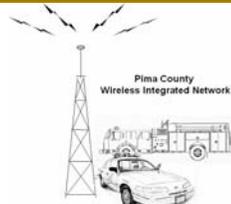
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



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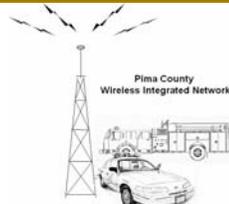
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#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



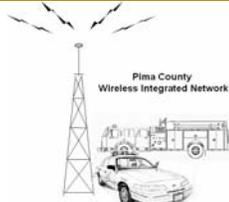
**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

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22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

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Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



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GOLDER RANCH FIRE

PAGE 02

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

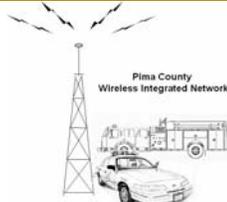
March 14, 2006

Fire and EMS Department Checklist

- 1) Department Name Golder Ranch Fire Dist.
- 2) Contact Name Andrew Smith
- 3) Contact Telephone Number 520-845-9378
- 4) Primary Response Area Oro Valley, Catalina, Saddlebrooke  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 90 5 Year Growth 130
- 6) Number of Fire Trucks and/or Engines  
Current 6 5 Year Growth 9
- 7) Number of Rescue and/or EMS response vehicles  
Current 4 5 Year Growth 6
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
Description Heavy Rescue/Equipment.  
Current 1 5 Year Growth 2  
Description Command  
Current 3 5 Year Growth 5



Computer System Checklist - Fire and EMS Department  
Page 2 of 7



04/24/2006 11:02 15208258043 GOLDER RANCH FIRE PAGE 03

Pima County, Arizona  
Wireless Integrated Network (PCWIN) March 14, 2006

Description Aerial  
Current 1 (100') 5 Year Growth -

9) Number of Fire or EMS stations  
Current 5 5 Year Growth 8

10) Number of Fire and/or Response Zones  
Current 5 5 Year Growth 8

11) Number of Fire runs per year  
Current 5800 5 Year Growth 9000

12) Number of EMS responses per year  
Current 3300 5 Year Growth 4500

13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.)  
Current 2000 5 Year Growth 4000

14) Number of calls (included above) that are out of your District/Jurisdiction.  
Current 80 5 Year Growth 100

15) Number of calls (included above) that are out of Pima County.  
Current 1200 5 Year Growth 1600

16) Number of calls (included above) that are out of Arizona.  
Current 0 5 Year Growth 0

17) Number of HAZMAT pre-plans

 COMMUNICATIONS

Computer System Checklist - Fire and EMS Department  
Page 3 of 7



04/24/2006 11:02 15208258043 GOLDR RANCH FIRE PAGE 04

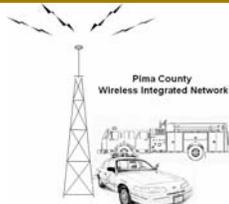
Pima County, Arizona  
Wireless Integrated Network (PCWIN) March 14, 2006

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	Current	<u>10</u>	5 Year Growth	<u>20</u>
18)	Number of structure and location pre-plans			
	Current	<u>200</u>	5 Year Growth	<u>400</u>
19)	Number of Move-up Plans			
	Current	<u>0</u>	5 Year Growth	<u>0</u>
20)	Number of fire hydrants			
	Current	<u>1500</u>	5 Year Growth	<u>2500</u>
21)	Number of Mobile Data terminals			
	Current	<u>10</u>	5 Year Growth	<u>20</u>
22)	Number of Station Computers or others that would log-on to the network			
	Current	<u>16</u>	5 Year Growth	<u>30</u>
23)	Number of personnel that would require an individual log-on password			
	Current	<u>8</u>	5 Year Growth	<u>14</u>

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 Computer System Checklist – Fire and EMS Department  
Page 4 of 7



**Instructions for the Fire and EMS Department Checklist**

The Pima County community is in the process of reviewing the current communications system. We are asking that the Fire and EMS Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

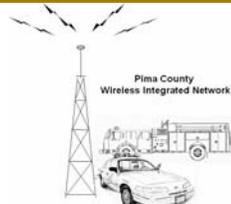
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

**Fire and EMS Department Checklist**

- 1) Department Name Northwest Fire
- 2) Contact Name Matt Janton
- 3) Contact Telephone Number 520-887-1010 x1123
- 4) Primary Response Area NWof Tucson, And Marana AZ  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 200 5 Year Growth 260
- 6) Number of Fire Trucks and/or Engines  
Current 8 5 Year Growth 12
- 7) Number of Rescue and/or EMS response vehicles  
Current 4 5 Year Growth 6
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
Description Haz-Mat/Command  
Current 2 5 Year Growth 2  
Description Aerial  
Current 2 5 Year Growth 3



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

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- Description Heavy Rescue
- Current 1 5 Year Growth 2
- 9) Number of Fire or EMS stations
- Current 8 5 Year Growth 12
- 10) Number of Fire and/or Response Zones
- Current 2 5 Year Growth 3
- 11) Number of Fire runs per year
- Current 3000 5 Year Growth 5000
- 12) Number of EMS responses per year
- Current 9000 5 Year Growth 11000
- 13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.)
- Current 1200 5 Year Growth 1800
- 14) Number of calls (included above) that are out of your District/Jurisdiction.
- Current 100 5 Year Growth 150
- 15) Number of calls (included above) that are out of Pima County.
- Current 50 5 Year Growth 100
- 16) Number of calls (included above ) that are out of Arizona.
- Current 10 5 Year Growth 20
- 17) Number of HAZMAT pre-plans



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

Current 1800 5 Year Growth 3000

18) Number of structure and location pre-plans

Current 1800 5 Year Growth 3000

19) Number of Move-up Plans

Current 0 5 Year Growth 0

20) Number of fire hydrants

Current 6000 5 Year Growth 10000

21) Number of Mobile Data terminals

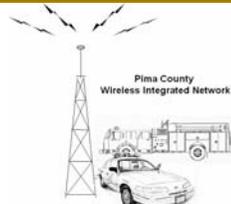
Current 50 5 Year Growth 70

22) Number of Station Computers or others that would log-on to the network

Current 30 5 Year Growth 50

23) Number of personnel that would require an individual log-on password

Current 200 5 Year Growth 260



**Provisions of NFPA 1221  
Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

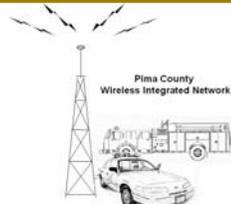
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



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2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

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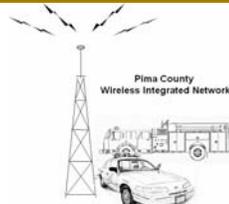
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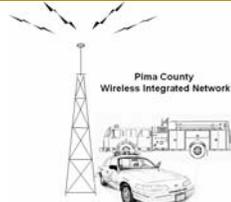
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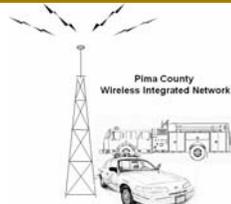
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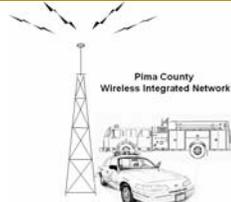
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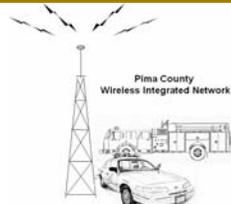
- 1) Department Name Picture Rocks Fire District
- 2) Contact Name Ernie Robles
- 3) Contact Telephone Number 520-682-7878
- 4) Primary Response Area Northwest Tucson area west of Tucson mountains  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 20 5 Year Growth 24
- 6) Number of Fire Trucks and/or Engines  
Current 6 5 Year Growth 7
- 7) Number of Rescue and/or EMS response vehicles  
Current 3 5 Year Growth 4
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
Description Brush Trucks  
Current 2 5 Year Growth 3  
Description Command (Chief) Vehicles  
Current 3 5 Year Growth 3



**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

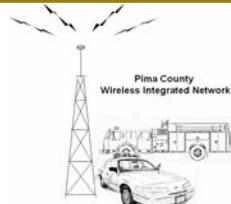
- Description \_\_\_\_\_
- Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_
- 9) Number of Fire or EMS stations  
Current 1 5 Year Growth 2
- 10) Number of Fire and/or Response Zones  
Current 1 5 Year Growth 1
- 11) Number of Fire runs per year  
Current 250 5 Year Growth 300
- 12) Number of EMS responses per year  
Current 750 5 Year Growth 900
- 13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.)  
Current 200 5 Year Growth 275
- 14) Number of calls (included above) that are out of your District/Jurisdiction.  
Current 50 5 Year Growth 75
- 15) Number of calls (included above) that are out of Pima County.  
Current 10 5 Year Growth 15
- 16) Number of calls (included above ) that are out of Arizona.  
Current 0 5 Year Growth 0
- 17) Number of HAZMAT pre-plans



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

- Current 11 5 Year Growth 15
- 18) Number of structure and location pre-plans
- Current 17 5 Year Growth 20
- 19) Number of Move-up Plans
- Current 0 5 Year Growth ?
- 20) Number of fire hydrants
- Current 70 5 Year Growth 100
- 21) Number of Mobile Data terminals
- Current 0 5 Year Growth 6
- 22) Number of Station Computers or others that would log-on to the network
- Current 4 5 Year Growth 7
- 23) Number of personnel that would require an individual log-on password
- Current 24 5 Year Growth 27



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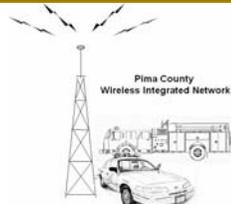
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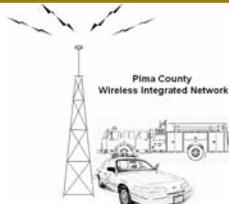
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5. Documentation Provided

- Fire Rescue Frequency Bands
- Golder Ranch Radio Locations and Frequencies
- Golder Ranch Channelization Plan
- Golder Ranch Summary of Current Communications System
- Frequency Chart
- Picture Rocks Radio station licensee
- Three Points Fire Summary of Current Communications System
- Three Points Channelization Plan

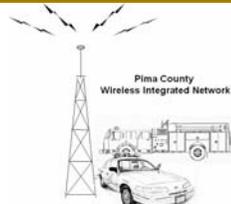


TABLE 2.1.9A Existing Interoperability

Agency Types		Fire Agencies		Police and Emergency Services Agencies		Federal Agencies		State	
Avra Valley Fire District		Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives			
Golder Ranch Fire District		Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection			
Northwest Fire District		Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration			
Picture Rocks Fire District		Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security			
Three Points FD		Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation			
		Elephant Head Vol. FD		Pima County Sheriff's Dept.	X	Immigration and Customs Enforcement			
		Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo	X	National Park Service			
		Green Valley Fire District		Sahuarita PD		Bureau of Land Management			
		Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife			
		Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service			
		Northwest Fire District		Tucson Airport Authority PD		U.S. Marshals Service			
		Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety			
		Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish			
		Rincon Valley Fire District							
		Rural Metro Fire/Southwest Ambulance							
		South Tucson FD							
		Three Points FD							
		Tohono O' odham FD							
		Tucson Airport Authority FD							
		Tucson FD	X						
		Ajo Ambulance	X						
		Why Fire District	X						

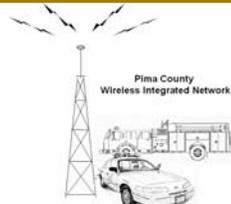
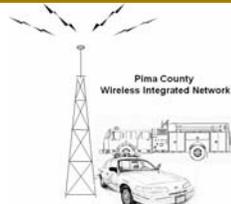




TABLE 2.1.9C  
 Northwest Fire, Avra Valley Fire, Golder Ranch Fire, Picture Rocks Fire, & Three Points Fire

DESIGNATOR NO.	ATTRIBUTE	Avra Valley Fire Dept.	Comments	Golder Ranch Fire Dist.	Comments	Northwest Fire Dist.	Comments	Picture Rocks Fire Dist.	Comments	Three Points Fire Dist.	Comments
<b>Radio Coverage</b>											
1	Improved Voice Radio Coverage – Eastern County	2.0		0.0		4.0		2.0			
2	Improved Voice Radio Coverage – Central County	2.0		0.0		1.0		5.0			
3	Improved Voice Radio Coverage – Western County	2.0		0.0		1.0		3.0			
4	In-building Coverage	5.0		4.0		3.0		5.0			
5	Minimize Local Interference	4.0		3.0		3.0		5.0			
<b>Voice Radio Operations</b>											
6	Increased Channel Capacity	3.0		1.0		2.0		4.0			
7	On-scene Fire Channels	5.0		4.0		3.0		4.0			
8	Monitored Firegrounds	4.0		5.0		3.0		5.0			
9	Emergency Alerting	5.0		5.0		4.0		4.0			
10	Workgroup Oriented Operation	5.0		3.0		2.0		3.0			
11	Voice Security	2.0		1.0		2.0		2.0			
12	Operational Boundary Transparency	2.0		3.0		2.0		2.0			
13	One System Serves All Agencies	4.0		3.0		3.0		3.0			
14	Interoperability through Dispatch	4.0		5.0		3.0		4.0			
15	Interoperability with Adjacent Counties	5.0		5.0		3.0		3.0			
16	Interoperability with State Agencies	5.0		5.0		3.0		4.0			
17	Interoperability with Federal Agencies	5.0		5.0		2.0		3.0			
18	Person Location	5.0		3.0		3.0		2.0			
19	System Control	4.0		3.0		2.0		3.0			
20	Recorded Operations	4.0		4.0		2.0		4.0			
21	Simplified User Operations	4.0		5.0		2.0		5.0			
<b>Dispatch Operations</b>											
22	Increased Dispatch Channel Capacity	3.0		3.0		1.0		3.0			
23	Dispatch Capacity	5.0		3.0		3.0		3.0			
24	Dispatch Coverage	5.0		3.0		2.0		5.0			
<b>Mobile Data Functions</b>											
25	One Mobile Data Network Serves All Agencies	3.0		4.0		2.0		5.0			
26	Cross CAD Interconnection	3.0		5.0		3.0		5.0			
27	Mobile Data Criticality	4.0		3.0		3.0		5.0			
28	Vehicle Location	4.0		5.0		3.0		4.0			
29	EMS Telemetry	4.0		5.0		3.0		4.0			
30	High-Speed Broadband Service	4.0		4.0		3.0		4.0			
31	Mobile Applications	4.0		4.0		3.0		4.0			
32	Advanced Mobile Applications	4.0		4.0		3.0		3.0			
33	Access County Information	3.0		3.0		3.0		5.0			
<b>Paging and Alerting Operations</b>											
34	Private Personnel Paging	3.0		4.0		2.0		2.0			
35	Fire Station Alerting	5.0		5.0		3.0		5.0			
36	Paging over Cellular	3.0		3.0		2.0		3.0			
<b>Infrastructure Capabilities</b>											
37	Future Expansion	4.0		3.0		3.0		5.0			
38	Owner-Controlled Backbone			3.0		2.0		4.0			
39	Microwave Connectivity	4.0		5.0		2.0		5.0			
40	Microwave Additional Capacity	4.0		5.0		2.0		5.0			
41	Regional Connectivity	4.0		4.0		2.0		5.0			
<b>Reliability and Availability</b>											
42	Survivability	4.0		5.0		2.0		5.0			
43	Reliability/Failure Hierarchy	5.0		5.0		3.0		4.0			
44	Single Points of Failure	5.0		5.0		3.0		4.0			
45	Power Backup	5.0		5.0		4.0		5.0			
<b>Training and Maintenance</b>											
46	Staffing and Training	5.0		4.0		3.0		5.0			
47	Centralized Maintenance	4.0		3.0		1.0		3.0			
<b>Cost and Procurement</b>											
48	Competitive Procurement Process	4.0		4.0		2.0		3.0			
49	Commonality of Equipment	4.0		4.0		2.0		5.0			
50	Multiple Sources	4.0		3.0		2.0		3.0			
51	Phased Implementation	3.0		5.0		2.0		4.0			
52	Tiered Subscriber Cost	4.0		3.0		2.0		4.0			

Ranking Scale:  
 0 - Attribute is NOT IMPORTANT to the user.  
 1 - Attribute is MINIMALLY IMPORTANT to the user.  
 2 - Attribute is NICE TO HAVE, could enhance operations.  
 3 - Attribute is USEFUL, will promote more efficient day to day operation.  
 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property.  
 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.



## 2.1.10 Oro Valley Police Department

### A. Current Environment

#### 1. Operational

The City of Oro Valley encompasses 33 square miles in the suburban municipality of northern Pima County. It is located in the foothills of the Catalina Mountains. Oro Valley consists of approximately 40,000 citizens. The Police Department includes 91 commissioned officers and 35 civilians. There is a volunteer group, consisting of 80 members that supplement the police force. The Oro Valley Police Department is dedicated to providing public law enforcement services to prevent crime and promote a safe environment for its citizens and visitors.

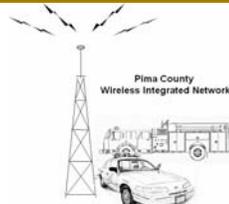
#### 2. Functional

The police 911 dispatch Communication Center is located at 11000 N. La Canada Drive in Oro Valley. The facility is approximately two years old. The Center is the 24/ 7 Public Safety Answering Point (PSAP) for Oro Valley and it provides enhanced 911 services for the community and is phase II compliant (wireless location). The 911 switch is the PLANT VESTA switch (2.2) and it is provided by the local phone company, QWEST. There are 11 dispatchers on staff. Typically there is one supervisor and 2 to 3 dispatchers on duty during the day. There are 2 dispatchers on duty during the swing shifts and 2 dispatchers on duty at mid-night. Typically another dispatcher will supplement staff during the week from 0900 to 2000. The standard shifts are:

0600 – 1600

1600 - 0200

2000 – 0600

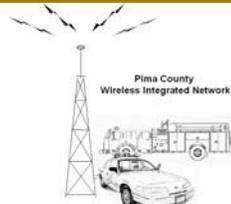


The Communications Center has four Motorola COMMAND STAR console positions. There is no position designated for the supervisor. The CAD system is the Spillman – Summit (4.5) same as the Sheriff system and records can be remotely accessed. (capability). The Logging and Recording operations is supported with the MERCOM PLANT/ PYXIS (3.2) system. It has the capability to record 24 channels. The Mapping functions are produced with the Orion MAPSTAR (5.1) program.

The Communications Center has eight (8) 911 lines and nine (9) administration lines. There are 6 single button transfer lines. Additional lines can be added with software configuring and programming more lines can be made available. Five (5) ring-down lines are available for direct communications with the Sheriff Department PSAP, the Tucson Police Department Communications Center PSAP, the Rural Metro Fire Dispatch Center, the Marana Police Communications Center, and the Arizona Highway Patrol.

### 3. Technical

The Police Department utilizes two UHF radio repeater channels for emergency response. The repeater equipment is located at the Communications Center facility. The repeaters are equipped with two frequency pairs and separated by PL tones. The repeater utilizes one (1) voter-receiver site to improve communications from field units to the repeater transmitter and eventually the Comm. Center. The Golder Ranch Fire Department Station 14 located on 1130 E Rancho Vistoso is the voter-receiver location. This voter is connected by phone lines back to the Comm. Center. A Special Ops Repeater is located in the in mid town on Country Club Road and it is used as a backup repeater during special or high-activity periods. The backup repeater utilizes a simplex channel. Radio communications does not have encryption.



All radio communications are conducted in the UHF band.

Title	Channel	Transmit	Receive	PL Tones
OV Main Repeater	1	465.100	460.100.	173.8 (tx & rx)
OV-CC	2	453.475	453.475	173.8
SWAT	3	458.475	458.475	141.3
Tri-Band Repeater (Gateway Repeater)	4	458.350	453.350	203.5
Special Ops Repeater (Country Club Road)	5	458.475	453.475	156.7 (tx), 141.3 (rx)
State-Wide Repeater	6	465.375	460.375	100.0
OV Back-up Repeater	8	458.475	453.475	173.8 (tx & rx)

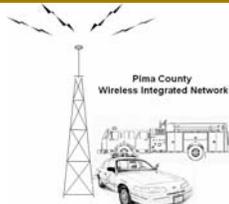
The department uses both Alltel and Sprint commercial services for Mobile Data applications. There is access to their records management systems to the vehicles but no Automatic Vehicle Relocation (AVL) capabilities.

The Oro Valley Police Department Non-Fixed radio inventories include 75 mobiles, 97 portables, 4 control stations and a 1 paging unit. There are typically 7 HT1000 portables, 7 CD 1250 mobiles, and 2 control stations that are used to support operations. There are 40 Tuff-Book laptops in vehicles and inventory, and seven wireless PDAs that are available of Mobile Data applications. There are 30 digital pagers. A commercial service company provides the paging network.

4. Interoperability

TABLE 2.1.10A shows the existing direct interoperability capabilities with other agencies for the department.

The Police Department usually communicates on their primary UHF OV channel.



The department has access to a State-Wide mutual aid repeater channel, and the Gateway repeater located at Tucson MTN. to communicate with other law enforcement, and rescue agencies, but the department is small and has difficulty monitoring the channel.

B. Positive Attributes of Current Environment

Police officers benefit from the information obtained through the mobile data system in vehicles. Though there are data transmission disconnects and the coverage area is not adequate throughout Oro Valley, the officers can access some information from their vehicle.

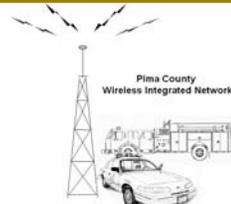
The radio voice system works well for the Police Department using the primary channel and having the backup channel available for busy periods or if there is a failure to the primary repeater. The system can get “busy” occasionally but the radio voice coverage is reliable throughout the Oro Valley Service area.

Interoperability with other law enforcement agencies is provided by the tri-band gateway repeater located on Tucson Mtn. although the department is small and has trouble manning the channel for their operations.

C. Desired Attributes of Current and Future Environment

1. Operational
2. Functional

The voice radio system should incorporate the addition of one or more radio channels to facilitate operations in the long-term, and the network should have the intelligence to allow the radio user to obtain information, either through voice or data applications with minimal effort.



The new system should incorporate improved mobile data reliability and an expanded coverage service area.

3. Technical

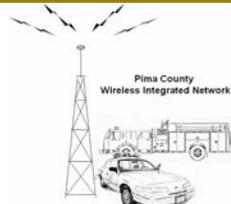
The ability to have map and Automatic Vehicle Location capabilities extended to the patrol vehicles is needed. High capacity or Wi-Max technology is needed so that vehicles can upload and down load extensive information from their Records Management Database.

4. Interoperability

TABLE 2.1.10B shows the future direct interoperability requirements the department. It is desirable to have common frequencies or talk-groups available to simplify radio protocol procedures and monitoring to facilitate interoperability with other agencies.

5. Attributes

Please refer to TABLE 2.1.10C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Oro Valley Police Department

**File Name:** - 022406 Oro Valley Police Department FINAL.doc

**Date of Interview:** - February 24, 2006

**Location of Interview:** - Pima County Sheriff Department

**Persons Interviewed:** - Nancy Anderson, ENP Communications  
Supervisor  
Phone: 520 229 – 4911  
Email: [nanderson@ovpd.org](mailto:nanderson@ovpd.org)

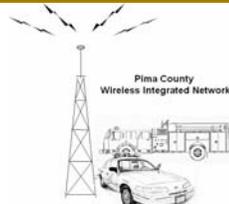
Larry Stevens, Commander  
Phone: 520 229 – 4903  
Email: [lstevens@ovpd.org](mailto:lstevens@ovpd.org)

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Oro Valley encompasses 33 square miles in the suburban municipality of northern Pima County. It is in the foothills of Catalina Mountains. There are approximately 40,000 citizens. The department includes 91 commissioned officers and 35 civilians. In addition there is a volunteer group, consisting of 80 members.
2. The Oro Valley Police Department is dedicated to providing public law enforcement services to prevent crime and promote a safe environment for its citizens and visitors.



**Present Situation**

1. The police 911 dispatch Communication Center is located at 11000 N. La Canada Drive in Oro Valley. The facility is approximately two years old. There are two repeater channels located at the Comm. Center facility; equipped with two frequency pairs and separated by PL tones. The repeater utilizes one (1) voter-receiver site – Golder Ranch Fire Department Station 14 – 1130 E Rancho Vistoso. The voter is connected by phone lines. In addition there is a Special Ops Repeater in mid town (Country Club Road) and it is used as a backup repeater during special or high-activity periods. The backup repeater utilizes a simplex channel. Radios are not encrypted. All radio communications are conducted in the UHF band:

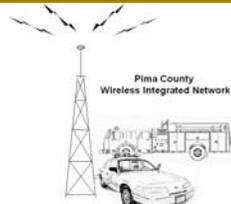
Title	Channel	Transmit	Receive	PL Tones
OV Main Repeater	1	465.100	460.100.	173.8 (tx & rx)
OV-CC	2	453.475	453.475	173.8
SWAT	3	458.475	458.475	141.3
Tri-Band Repeater (Gateway Repeater)	4	458.350	453.350	203.5
Special Ops Repeater (Country Club Road)	5	458.475	453.475	156.7 (tx), 141.3 (rx)
State-Wide Repeater	6	465.375	460.375	100.0
OV Back-up Repeater	8	458.475	453.475	173.8 (tx & rx)

2. The Oro Valley Comm. Center is a 24/ 7 Public Safety Answering Point (PSAP) and provides enhanced 911 services for the community and is phase II compliant (wireless location). The 911 switch is the PLANT VESTA switch (2.2) and it is provided by the local phone company – QWEST. There are 11 dispatchers on staff. Typically there is one supervisor and 2 to 3 dispatchers on duty during the day. There are 2 dispatchers on duty during the swing shifts and 2 dispatchers on duty at mid-night.

Shifts:

- 0600 – 1600
- 1600 - 0200
- 2000 – 0600

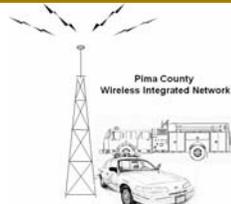
Typically there is an additional dispatcher on duty during the week from 0900 to 2000.



3. There are four Motorola COMMAND STAR console positions. There is no position designated for the supervisor. The CAD system is the Spillman – Summit (4.5) same as the Sheriff system (remote access capability). Logging and Recording is done with the MERCOM PLANT/ PYXIS (3.2) system – 24 channels are recorded. Mapping is performed using the Orion MAPSTAR (5.1) program.
4. The Comm. Center has 8 - 911 lines and 9 administration lines, there are 6 single button transfer lines and with software programming more lines can be made available. There are 5 ring-down lines – PCSD, TPD Comm. Center, rural Metro, Marana, and the State Highway Patrol.
5. The department uses commercial services – Alltel and Sprint – for Mobile Data applications. There is access to their records management systems to the vehicles but no AVL capabilities.
6. The Oro Valley Police Department inventory includes 75 mobiles, 97 portables, 4 control stations and 1 paging unit. There are typically 7 HT1000 portables, 7 CD 1250 mobiles, and 2 control stations that are used to support operations. There are 40 Tuff-Book laptops in vehicles and inventory, and seven wireless PDAs. There are 30 digital pagers.

**Present Problems**

1. Mobile data transmissions experience frequent disconnects.
2. Mobile data coverage is not reliable in Oro Valley.
3. Mapping capabilities cannot be extended to the vehicle.
4. Voice radio coverage, the need for an additional radio channel to relieve congestion has been identified as an occasional problem, but relatively a minor problem.
5. There is an interoperability channel (gateway) available but the department is small and has trouble manning the channel for their operations.



**Future Requirements**

1. Oro Valley Police Department is looking to add AVL, mapping and Mobile Data capabilities.

**Additional Comments**

None.

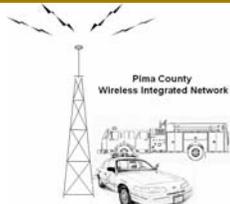
The draft of this record was sent to Nancy Anderson on March 23, 2006.

Corrected draft was returned to CTA Communications on April 3, 2006.

**Interviewee Name & Address:**

Nancy Anderson  
11000 N. La Canada Drive  
Oro Valley, AZ 85737

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Police Department FINAL.doc



## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Oro Valley Police Department  
Contact Name: Gary Schmitz Position: Detective - I.T.  
Phone: 520-229-4932 Email: gschmitz@ovpd.org

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Page 1 of 7



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	75	7	20	14	
Portables	97	7	40	30	
Control Stations	4	2	3	2	
Paging units	1				
Other Devices					

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

all UHF

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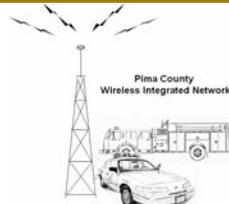
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c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles	45	yes



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

Jail Transport	1	yes
Special Ops	4	yes
Vehicular Repeaters *	1	yes
Disposal Collector		yes
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans	2	no
Buses		
Cars	10	no
Other (Please Describe) Forensics / ID	2	yes

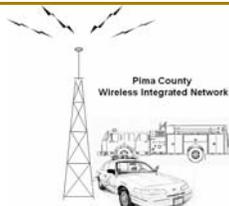
\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

Cars are unmarked admin cars.

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
11000 N. La Canada Dr	4	Comm Dispatch Consoles



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

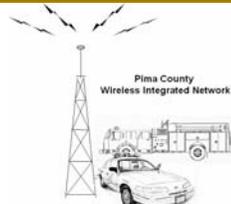
**Clarifications:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

e. Please list the talk-group or channel assignments for your radios.

Primary Talk groups or channel name	Other Talkgroups or channel name	Repeater or Simplex **	Surrounding city or county	Federal	Tribal
OV Main	F1	Repeater	Pima County		
OV Car to Car	F2	Simplex			
SWAT	F3	Simplex			
Gateway	F4	Repeater			
Spec Ops	F5	Repeater			
Marana	F6	Repeater			
OV Backup	F8	Repeater			

\* Designate the frequency band if known in the appropriate box.  
 \*\* A repeater channel is a channel that utilizes a tower; a simplex channel communicates radio to radio without the benefit of a tower repeater.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**Clarifications:**

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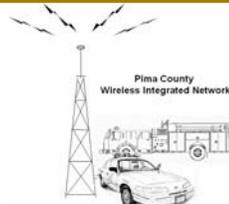


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**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Portable Radio Coverage			X			
Need addl operational frequency			X			
Interoperability channel avail but not manned			X			



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.

**Clarifications:**

*Gateway Interop channel works great but we are in small agency + would have difficulty warning the channel each for our own use.*



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	25	50	100	150
Portables	25	65	125	180
Control Stations	1	3	5	7
Paging units	-	-	-	-
Other Devices				

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

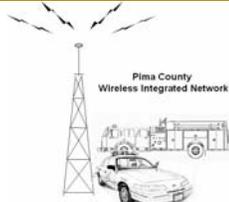
Thank you for your assistance.

Please hand this survey in during your interview or return to:

CTA Communications, Inc. Fax: (434) 239-9221  
 P.O. Box 4579 Phone: (434) 239-9200  
 Lynchburg, VA 24502-0579 [PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** Oro Valley Police Department  
**Contact Name:** Gary Schmitz **Position:** Detective IT  
**Phone:** 520 229-4932 **Email:** gschmitz@ovpd.org

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**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

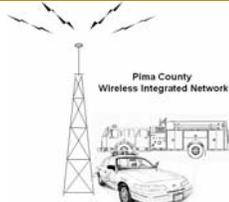
Mobile data equipment do you currently have: Panasonic Toughbooks  
Age: vary Condition: good Adequate?: yes  
3yrs - new

Mobile data functions that you currently have and use:

Computer Aided Dispatch:  yes Name of CAD system: Spillman Summit  
Access to Records Management:  yes Name of RMS system: Spillman Summit  
Records functions available:  yes  
Field Reporting: limited Automatic Vehicle Location (AVL): No  
Email:  yes Outlook or web-based? No - Spillman  
Text Messaging: Car to car:  yes Car to dispatch:  yes  
Query (Person, Vehicle, Property, etc) Local:  yes State:  yes National:  yes

---

 Page 1 of 4



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

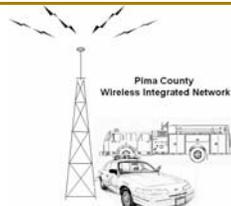
*frequent disconnects + unreliable cellular coverage area.*

*mapping module not currently available.*

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc): Alltel, Sprint

Wi-Fi: \_\_\_\_\_

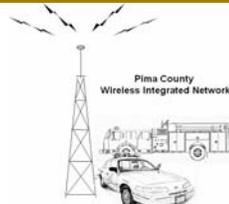
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	Currently in service		USAGE		
	On Hand	Un-met Needs	Estimated Future Needs (use either number of units or % growth)		
			2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	40	5	55	70	85
Wireless Handhelds (PDA's)	7	4	15	20	40
AVL equipped	0		55	70	85
Digital Pagers	30		30	30	30
Tone Voice Pagers	0				
Other Devices <u>WiFi</u>			55	70	85

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	15 per day
Query (license checks, vehicle registrations, wanted persons, property checks)	100 per day
Car-to-car or car-to-dispatch message	30 per day
Status updates	30 per day



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Emails	5 per day
Field Report	8 per day
Other _____	
Other _____	
Other _____	

Any additional comments or questions you have regarding mobile data:

*interface with other agencies*  
*wireless future connectivity.*

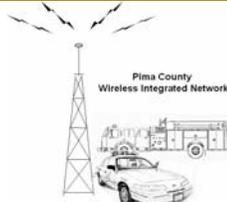
Please hand this survey in during your interview or return to:

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
PCWIN@ctacommunications.com

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\PCWIN Mobile Data Survey.doc



#### 4. Computer Systems Checklist – Law Enforcement Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Law Enforcement Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Law Enforcement Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. The NFPA 1221 provisions have been adopted by the Commission on Accreditation for Law Enforcement Agencies (CALEA) for CAD systems. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

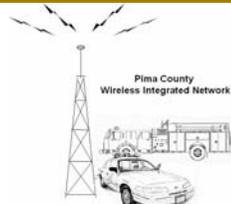
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.



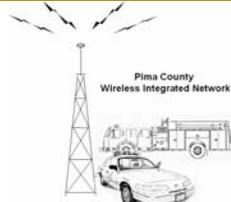
**Law Enforcement Department Checklist**

- 1) Department Name Oro Valley PD
- 2) Contact Name Larry Stevens
- 3) Contact Telephone Number 520-229-4903
- 4) Primary Response Area Police services for 34 square mile suburban municipality in Northern Pima County. Oro Valley is a Tucson suburb at the base of the foothills of the Catalina Mountains

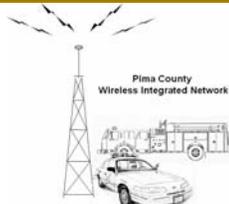
\_\_\_\_\_

\_\_\_\_\_

- 5) Number of Personnel  
Current 157 5 Year Growth 25
- 6) Number of Uniform vehicles  
Current 45 5 Year Growth 15
- 7) Number of Detective and radio equipped administrative vehicles  
Current 16 5 Year Growth 5
- 8) Number and description of specialized vehicles (such as SWAT, Command, Crime Scene, etc.)  
Description SWAT Peacekeeper  
Current 1 5 Year Growth 0  
Description Property/Forensics Van  
Current 2 5 Year Growth 1



- Description Mobile Command Post
- Current 1 5 Year Growth 1
- 9) Number of stations or precincts
- Current 4 5 Year Growth 1
- 10) Number of response zones or beats
- Current 4 5 Year Growth 3
- 11) Number of dispatched calls per year
- Current 13730 5 Year Growth 5000
- 12) Number of traffic stops per year
- Current 10200 5 Year Growth 1000
- 13) Number of on-view or officer initiated calls per year
- Current 1920 5 Year Growth 0
- 14) Number of Other calls requiring a unit (education, assist motorist, standby, etc.)
- Current Normal service included above 5 Year Growth \_\_\_\_\_
- 15) Number of calls (included above) that are out of your zone.
- Current 480 5 Year Growth 50
- 16) Number of calls (included above) that are out of Pima County.
- Current 0 5 Year Growth \_\_\_\_\_



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

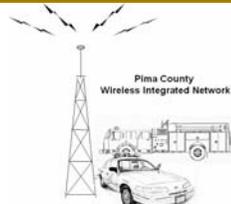
March 14, 2006

- 17) Number of calls (included above ) that are out of Arizona.  
Current 0 5 Year Growth \_\_\_\_\_
- 18) Number of arrests per year (other than traffic citations)  
Current 2249 5 Year Growth \_\_\_\_\_
- 19) Number of ACIC/NCIC requests  
Current 253,000 5 Year Growth 125,000
- 21) Number of case report numbers issued per year.  
Current 16,000 5 Year Growth \_\_\_\_\_
- 22) Number of Mobile Data terminals  
Current 40 5 Year Growth 20
- 23) Number of station computers or others that would log-on to the network  
Current 17 5 Year Growth 6
- 24) Number of personnel that would require an individual log-on password  
Current All 5 Year Growth All
- 25) Highest typical number of officers than are on duty.  
Current 30 5 Year Growth 10

**Provisions of NFPA 1221 and CALEA**



Computer System Checklist – Law Enforcement  
Departments  
Page 4 of 7



### Annex D Computer-Aided Dispatching (CAD) Systems

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

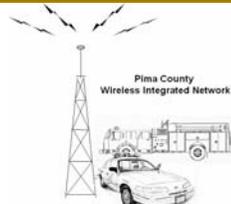
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

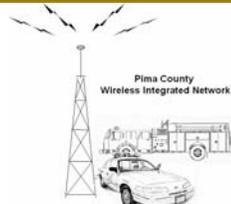
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided
  - Radio Frequencies
  - Radio Station Licensee
  - Law Enforcement frequency bands
  - Oro Valley 2000 demographics.pdf
  - Operations Division Chart

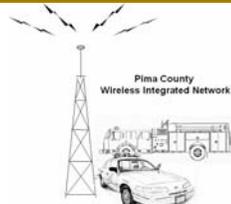


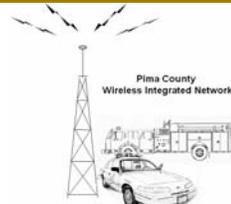
TABLE 2.1.10A Existing Interoperability

Oro Valley PD	Agency Types		Oro Valley PD	Agency Types	Oro Valley PD	Agency Types
Ajo/Gibson Vol. FD	Fire Agencies		Marana PD	Police and Emergency Services Agencies	Bureau of Alcohol, Tobacco, Firearms & Explosives	Federal Agencies
Arivaca Vol. FD			Oro Valley PD		Customs and Border Protection	
Avra Valley Fire District			Pascua Yaqui PD		Drug Enforcement Administration	
Corona de Tucson Fire District			Pima College Dept. of Public Safety		Emergency Man. & Homeland Security	
Drexel Heights Fire District			Pima County OEM & Homeland Security		Federal Bureau of Investigation	
Elephant Head Vol. FD			X Pima County Sheriff's Dept.		Immigration and Customs Enforcement	
Golder Ranch Fire District			Pima County Sheriff's Dept. - Ajo		National Park Service	
Green Valley Fire District			Sahuarita PD		Bureau of Land Management	
Helmet Peak Fire District			South Tucson PD		U.S. Fish & Wildlife	
Mt. Lemmon Fire District			Tohono O'odham Tribal Police		U.S. Forest Service	
Northwest Fire District			Tucson Airport Authority PD		U.S. Marshals Service	
Pascua Pueblo FD			Tucson PD		Arizona Dept. of Public Safety	
Picture Rocks Fire District			University of Arizona Police		Arizona Game and Fish	
Rincon Valley Fire District		Fire Agencies				
Rural Metro Fire/Southwest Ambulance						
South Tucson FD						
Three Points FD						
Tohono O' odham FD						
Tucson Airport Authority FD						
Tucson FD						
Ajo Ambulance						
Why Fire District						



TABLE 2.1.10C  
 Oro Valley Police Department

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	5.0	
2	Improved Voice Radio Coverage – Central County	4.0	
3	Improved Voice Radio Coverage – Western County	4.0	
4	In-building Coverage	5.0	
5	Minimize Local Interference	3.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	4.0	
7	On-scene Fire Channels	4.0	
8	Monitored Firegrounds		?
9	Emergency Alerting	4.0	
10	Workgroup Oriented Operation	3.0	
11	Voice Security	2.0	
12	Operational Boundary Transparency	3.0	
13	One System Serves All Agencies	2.0	
14	Interoperability through Dispatch	3.0	
15	Interoperability with Adjacent Counties	3.0	
16	Interoperability with State Agencies	3.0	
17	Interoperability with Federal Agencies	3.0	
18	Person Location	2.0	
19	System Control	3.0	
20	Recorded Operations	4.0	
21	Simplified User Operations	4.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	4.0	
23	Dispatch Capacity	5.0	
24	Dispatch Coverage	5.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	3.0	
26	Cross CAD Interconnection	3.0	
27	Mobile Data Criticality	4.0	
28	Vehicle Location	3.0	
29	EMS Telemetry		?
30	High-Speed Broadband Service	3.0	
31	Mobile Applications	4.0	
32	Advanced Mobile Applications	4.0	
33	Access County Information	2.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	3.0	
35	Fire Station Alerting		?
36	Paging over Cellular	3.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	4.0	
38	Owner-Controlled Backbone	4.0	
39	Microwave Connectivity	4.0	
40	Microwave Additional Capacity	3.0	
41	Regional Connectivity	3.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	4.0	
47	Centralized Maintenance	4.0	
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	0.0	The most reliable is the most important factor.
49	Commonality of Equipment	3.0	
50	Multiple Sources	2.0	
51	Phased Implementation	3.0	
52	Tiered Subscriber Cost	3.0	
<b>Ranking Scale</b>			
0 - Attribute is NOT IMPORTANT to the user.			
1 - Attribute is MINIMALLY IMPORTANT to the user.			
2 - Attribute is NICE TO HAVE, could enhance operations.			
3 - Attribute is USEFUL, will promote more efficient day to day operation.			
4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property.			
5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.1.11 Pascua Yaqui Police Department and Pascua Pueblo Fire Department

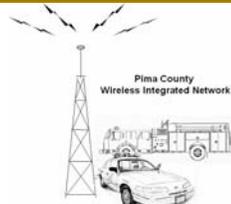
### A. Current Environment

#### 1. Operational

The Pascua Yaqui Tribe resides on reservation land near Southern Tucson. The Tribe has 13,000 registered members and is self-governed. The reservation is approximately 10 square miles. Two square miles are residential. The Pascua Yaqui Tribe has an 11 member Tribal Council including the Chairman. The Pascua Yaqui Tribe owns and operates two casinos in Southern Arizona, Casino of the Sun and the recently opened Casino Del Sol.

The Pascua Yaqui Police Department provides law enforcement service to the Pascua Yaqui Community. Department services include Law Enforcement, Criminal Investigations, Animal Control, Security Services, Detention Services, Public Safety Communications and Dispatch and the Police Explorer Program.

The Pascua Pueblo Fire Station #1 is located at 4631 W. Calle Torim, Tucson. The building is approximately 6,000 square feet and has four fire truck bays to hold three public safety vehicles including an ambulance, a pumper fire truck and a 100 foot aerial ladder truck. Pascua Pueblo Fire Department has 25 fire fighters and 6 reserves. Eight fire fighters work at fire station a day with 2 administrative people. They receive medical alerts from Tucson on UHF. They do medical transport to University Medical Center, Tucson Medical Center, and St. Mary's Hospital. They also help with aid on Drexel Fire Department. They have 2 fire calls every 6 months on reservation, 20 fire calls on Drexel Fire Department every month. They receive 1,798 EMS and fire calls a year.



2. Functional

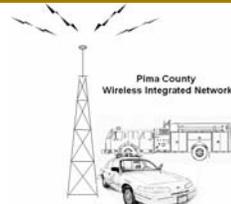
The Police Department has 30 patrol officers, 1 school officer, 20 patrol officers, and 1 animal control officer. The department is typically staffed with 12 officers per day shift, 3 officers per night shift, and 4 officers per weekends. The department will staff special events with 6 to 8 officers, and up to 20 officers for large-scale concerts or events. Usually there are 3 to 4 EMTs on duty for large events. Pascua Yaqui Police Department manages a combined Police/ Fire & Rescue PSAP. The Comm. Center provides E911 services for police, fire, and EMS operations. They receive approximately 17,000 911 calls/ yr. and approximately 4,300 non-emergency services per year. The Comm. Center dispatches about 7000/ yr law enforcement calls and 1,800 calls Fire Medical calls. Approximately 15,500 CJIS (SCIC/ NCIC) inquiries are made per year. There are two dispatchers and 1 supervisor on-duty during the day. During afternoon and evening shifts the center is staffed with 2 dispatchers.

3. Technical

The Communications Center is equipped with a Plant VESTA (v2.5) 911 switch. It was installed in 2004. It was installed in 2002. The PBX is a NEX switch. Both switches are provided by QWEST. The equipment is ALI/ ANI capable (enhanced). There are four (4 ) 911 lines and four (4) other lines. The CAD system is a SPILLMAN MILLENIUM (v4.0).

The Console positions are MOTOROLA STAR COMMAND Consoles. They were installed in 1999. The logging recorder is a NICE logging recorder with 16 channel recording capacity and DVD RAM storage.

The police utilize MTS2000 and portables are HT1000 operating in the 800 MHz band and the fire department operates in the VHF band.



The combined radio quantities for Police and Fire are shown below:

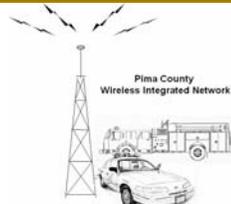
Radio Units	Inventory	Shift 1	Shift 2	Shift 3
Mobiles	30	20	9	9
Portables	47	27	13	9
Control Stations	2	2	2	2
Paging Units	2			

The Police utilize a three (3) channel MOTOROLA 800 MHz radio system that operates in 25 kHz wide-band, conventional mode. One repeater is a QUANTAR and the other two are the MTC2000 models.

Channel	Name	Rx (MHz)	Tx (MHz)	PL
1	PS1	814.175	859.175	5A
2	PS2	818.2	863.2	5A
3	Keystone	815.15	860.15	4A
4	TOPD (Sells)	811.175	856.175	DPL 025
5	TRI-BAND	820.25	865.2	2Z
6	PCSO	868.0125		5A
7	Talkaround 1	863.2	863.2	5A
8	Talkaround 2	860.15	860.15	4A
9	Talkaround 3	859.175	859.175	5A

The Pascua Pueblo Fire Department has five frequencies to support their operations. The repeater site is located at the Drexel Heights location and the following channels are at the Drexel Heights location:

Channel	Rx (MHz)	Tx (MHz)	PL
1	153.775	154.755	
2	154.965	158.955	
3	460.6125	465.6125	



Currently public safety has 22 laptop computers (Fire & Police) operating on the Mobile Data System and can access the PARAZON/ Millennium CAD/ RMS.

4. Interoperability

TABLE 2.1.11A shows the existing direct interoperability capabilities with other agencies for both the Police and Fire departments.

The Police Department utilizes 800 MHz frequencies and can communicate with the Sheriff Office dispatch, and the Tohono O’odham Tribal Police. Radio communications with the Tucson Police Department, Pasqua Pueblo Fire, and Drexel Heights Fire is limited to the Tri-band repeater located on Tucson Mtn. because they operate on VHF frequencies.

The Pasqua Pueblo Fire Department communicates with Drexel Heights Fire on VHF frequencies and with the hospitals on UHF frequencies to support medical operations.

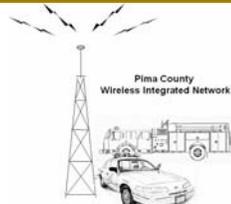
B. Positive Attributes of Current Environment

1. Operational

Police and Fire utilize radios operating in different frequency bands and it will simplify operations if both departments migrated to a common frequency band.

2. Functional

Pascua Yaqui Police Department has in-building coverage problems mainly in the hospital and casino that will need to be addressed.



The mobile data system operates in a reduced geographical service area (50 %) and officers and/ or firefighters will require an expanded geographical service area to support operations. The ability to incorporate new data technologies and access to dispatch records from the vehicle or apparatus should be addressed.

3. Technical

The MOTOROLA 800 MHz channel SMARTNET conventional system is equipped with 3 channels and the system can be expanded and upgraded to a wide-area trunked simulcast network that will better serve public safety. The system has the capability to add another channel to account for future growth and potentially the addition of the Fire Department.

The VHF system operates from 1 base station. The system will require additional sites and potentially more channels to support the service area.

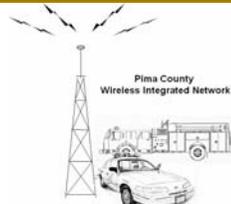
C. Desired Attributes of Current and Future Environment

1. Operational

The Pascua Pueblo Fire Department does not have mobiles in their vehicles but will require them in the future. Vehicles include 2 Brush Trucks, 2 Pumpers, 2 Ladders, and 2 ambulances.

2. Functional

Pascua Yaqui Police Department has in-building coverage problems mainly in the hospital and casino and the new system should address wide area and in-building coverage deficiencies.



The mobile data system should be expanded and upgraded to meet operational requirements of the Pasqua Yaqui public safety responders service area and include AVL, file-transfer and test-messaging capabilities. The ability to access CJIS or AJIS databases is important.

3. Technical

The 800 MHz radio system should be expanded to incorporate the growth of radio users operating on the system:

Mobiles 10% (5 yr.), 5 % every 5 yrs. Afterwards.

Portables 20% (5 yr.), 10 % (10 yrs), 5% afterwards.

Control Stations 50 % (5 yr.), 50 % (10 yrs)

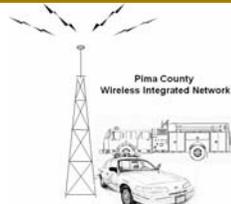
The 800 MHz system can incorporate Project 25 trunked simulcast radio feature advancements. The system should include network interfaces or gateways to support other agencies such as the FBI, Tucson Police Department, and Customs.

The system upgrade should incorporate a modern Mobile Data System that will facilitate file transfer, reporting, and AVL technology from dispatch to vehicles and apparatus.

4. Interoperability Matrix

TABLE 2.1.11B shows the future direct interoperability requirements with other agencies for both the Police and Fire departments.

It is important for the Police Department to have radio interoperability with the PC Sheriff's Office, the Tohono O'odham Nation Police, Phoenix Police, Marana Police, South Tucson Police, Tucson Police Department, the FBI, Customs, Drexel Heights Fire and Pascua Fire.

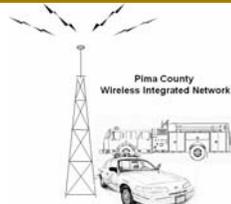


The Pascua Pueblo Fire Department should have radio interoperability with the Pascua Yaqui Police, Drexel Heights Fire, and the hospitals for medical transport (UMC, TMC and St Mary's).

It is desirable to have common frequencies or talk-groups available to simplify radio protocol procedures and monitoring to facilitate interoperability with other agencies.

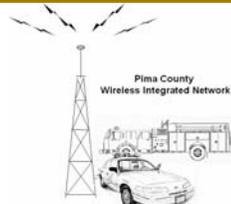
5. Attributes Matrix

Please refer to TABLE 2.1.11C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record



**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Pascua Yaqui Police Department  
Pascua Yaqui Fire Department

**File Name:** - 030106 Pascua Yaqui Fire and Police Interview  
Record Final.doc

**Date of Interview:** - March 01, 2006

**Location of Interview:** - Pima County Sheriff Department  
1750 E. Benson Highway  
Tucson, Arizona 85714

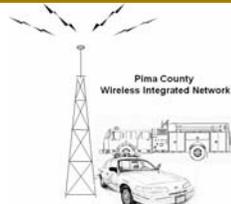
**Persons Interviewed:** - Basilio E. Martinez, Fire Chief  
Hector Olivo, PYPD, Lieutenant  
Elizabeth Esparaza, PYPD Lieutenant  
Tracy E. Nielsen, PYPD Assist. Police Chief

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

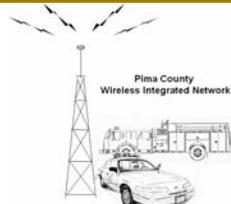
1. The Pascua Yaqui Tribe resides on reservation land near Southern Tucson. The Tribe has 13,000 registered members and is self-governed. The Pascua Yaqui Tribe has an 11 member Tribal Council including the Chairman. The Pascua Yaqui Tribe owns and operates two casinos in Southern Arizona, Casino of the Sun and the recently opened Casino Del Sol.
2. The Pascua Yaqui Police Department provides law enforcement service to the Pascua Yaqui Community. Department services include Law Enforcement, Criminal Investigations, Animal Control, Security Services, Detention Services, Public Safety Communications and Dispatch and the Police Explorer Program.



3. The Pascua Pueblo Fire Station #1 is located at 4631 W. Calle Torim, Tucson. The building is approximately 6,000 square feet and has four fire truck bays to hold three public safety vehicles including an ambulance, a pumper fire truck and a 100 foot aerial ladder truck. Pascua Pueblo Fire Department has 25 fire fighters and 6 reserves. Eight fire fighters work at fire station a day with 2 administrative people. They receive medical alerts from Tucson on UHF. They do medical transport to University Medical Center, Tucson Medical Center, and St. Mary's Hospital. They also help with aid on Drexel Fire Department. They have 2 fire calls every 6 months on reservation, 20 fire calls on Drexel Fire Department every month. They receive 1,798 EMS and fire calls a year.
4. The reservation is approximately 10 square miles. Two square miles are residential.

**Present Situation**

1. The Police Department has 30 patrol officers, 1 school officer, 20 patrol officers, and 1 animal control officer. There are typically staffed – 12/ day shift, 3/ night shift, and 4 on the weekends. Special events are staffed with 6-8, and up to 20 maximum for large-scale concerts or events. Usually there are 3-4 EMT's on staff.
2. Pascua Yaqui Police Department manages a combined Police/ Fire & Rescue PSAP. The Comm. Center provides E911 services for police, fire, and EMS operations. They receive approximately 17,000 911 calls/ yr. and approximately 4,300 non-emergency services per year. The Comm. Center dispatches about 7000/ yr law enforcement calls and 1,800 calls Fire Medical calls. Approximately 15,500 CJIS (SCIC/ NCIC) inquiries are made per year.
3. The Communications Center has a Plant VESTA (v2.5) 911 switch. It was installed in 2004. The CAD system is a SPILLMAN MILLENIUM (v4.0). It was installed in 2002.
4. The Consoles are MOTOROLA STAR COMMAND Consoles. Installed in 1999. The logging recorder is a NICE logging recorder with 16 channel recording capacity – DVD RAM. The PBX is a NEX. The telephone provider is QWEST. Equipment is ALI/ ANI capable (enhanced). There are four (4) 911 lines and four (4) other lines.
5. The Communications Center has two dispatchers, and 1 supervisor on-duty during the day. Afternoon and evening shifts are staffed with 2 dispatchers.
6. Mobiles are MTS2000 and portables are HT1000.



Radio quantities for Police and Fire:

Radio Units	Inventory	Shift 1	Shift 2	Shift 3
Mobiles	30	20	9	9
Portables	47	27	13	9
Control Stations	2	2	2	2
Paging Units	2			

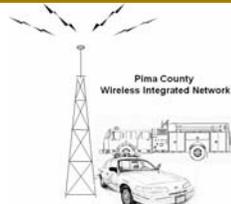
7. Fire will require mobiles in their vehicles. Vehicles include 2 Brush Trucks, 2 Pumpers, 2 Ladders, and 2 ambulances.
8. The Police has a three (3) channel MOTOROLA 800 MHz radio system that operates in 25 kHz wide-band, conventional mode. One repeater is a QUANTAR and the other two are MTC2000.

Channel	Name	Rx (MHz)	Tx (MHz)	PL
1	PS1	814.175	859.175	5A
2	PS2	818.2	863.2	5A
3	Keystone	815.15	860.15	4A
4	TOPD (Sells)	811.175	856.175	DPL 025
5	TRI-BAND	820.25	865.2	2Z
6	PCSO	868.0125		5A
7	Talkaround 1	863.2	863.2	5A
8	Talkaround 2	860.15	860.15	4A
9	Talkaround 3	859.175	859.175	5A

9. The Pascua Yaqui Fire Department has five frequencies that they operate from. The repeater site is located at the Drexel Heights location. The following channels are at the Drexel Heights location:

Channel	Rx (MHz)	Tx (MHz)	PL
1	153.775	154.755	
2	154.965	158.955	
3	460.6125	465.6125	

10. Currently public safety has 22 laptop computers (Fire & Police) operating on the Mobile Data System and can access the PARAZON/ Millennium CAD/ RMS.





2. Radio Usage Form

4

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** Pascua Yaqui Police Department

**Contact Name:** Tracy E. Nielsen                      **Position:**           

**Phone:** 520-879-5638                                      **Email:** tracy.nielsen@pascuayaqui-nsn.gov

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Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

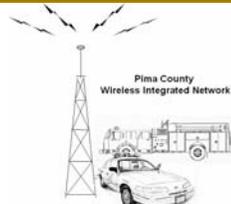
**I: RADIO UTILIZATION CURRENT SITUATION**

a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

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 Page 1 of 8



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	Shift 4
<b>Mobiles</b>	30	20	9	9		
<b>Portables</b>	47	27	13	9		
<b>Control Stations</b>	2	2	2	2		
<b>Paging units</b>	2					
<b>Other Devices</b>						

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

\_\_\_\_\_

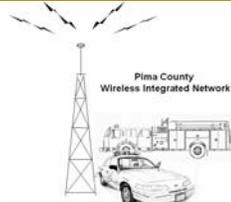
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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	2	yes
Water Tender		
Pumper/ Engine	2	yes
Ladder Truck	2	yes
Ambulance	2	yes
Patrol Vehicles	15	yes
Jail Transport	2	yes
Special Ops	5	yes
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans	1	yes
Buses		
Cars		
Other (Please Describe)	6	yes

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

other refers to two command vehicles in the fire department and 4 command vehicles in the police department

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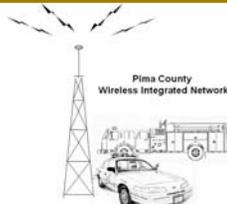
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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

Clarifications:

[Redacted area with horizontal lines for clarifications]

Thank you for your assistance.

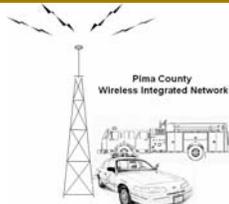
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document I



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

4

CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Pascua Pueblo Fire Department

Contact Name: Basilio Martinez

Position: Fire Chief

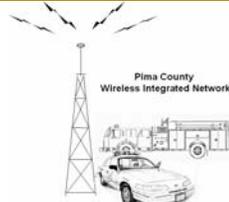
Phone: 520-879-5721

Email: bmartinez@pascuavaqui-nsn.gov

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	20 Total	10 Total	10 Total	10 Total	
	✓ 10 VHF	8 Field	8 Field	8 Field	
	✓ 10 UHF	2 Office	2 Office	2 Office	
Portables	37 Total	10 Total	10 Total	10 Total	
	✓ 26 VHF	8 Field	8 Field	8 Field	
	✓ 11 UHF	2 Office	2 Office	2 Office	
Control Stations	8 Total	10 Total	10 Total	10 Total	
	✓ 4 VHF	8 Field	8 Field	8 Field	
	✓ 4 UHF	2 Office	2 Office	2 Office	
Paging units	1 Alpha	10 Total	10 Total	10 Total	
	Numeric	8 Field	8 Field	8 Field	
		2 Office	2 Office	2 Office	
Other Devices					

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

VHF radios are the Fire frequency

UHF radios are MEDS Control Tucson frequency

Paging System is an Alpha Numeric



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

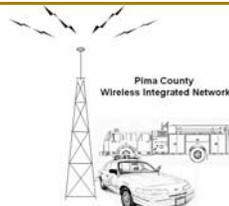
c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	1	yes 2, 1 VHF & 1 UHF
Water Tender	0	
Pumper/ Engine	2	yes 4, 1 VHF & 1 UHF per vehicle
Ladder Truck	2	yes 4, 1 VHF & 1 UHF per vehicle
Ambulance	2	yes 6, 1 VHF & 1 UHF per vehicle
Patrol Vehicles	0	
Jail Transport	0	
Special Ops	0	
Vehicular Repeaters *	0	
Disposal Collector	0	
Maintenance Truck	0	
Utility Trucks	0	
Highway Maintenance	0	
Vans	0	
Buses	0	
Cars	0	
Other (Please Describe)	3	yes 6, 1 VHF & 1 UHF per vehicle

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

Other - Consists of two Command and one Rescue Trucks, 1 VHF & 1 UHF per vehicle



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
4631 W. Calle Torim	7 total 3 UHF base radios 4 VHF base radios	In-house communications with Dispatch and units in the field.

Clarifications:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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*note  
 \* missing page 4 of 10*





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

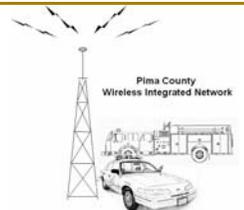
Radio Usage Information Survey  
 February 7, 2006

**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
There are "dead spots" in responding area				X		
Experience "bleed in" from other frequencies			X			

- 0 : No problem identified.
- 1 : Identified problem, currently not of concern. May become a concern in the future.
- 2 : Occasionally a problem, affects some operations but is generally worked around.
- 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
- 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.

N/A: Not applicable or not answered.

**Clarifications:**

There are areas of the community that "dead spots" are present when using portable radios. Communication is lost with portables but is regain by using mobile radios. Some instances, you may move 5 to 10 feet and regain communications.

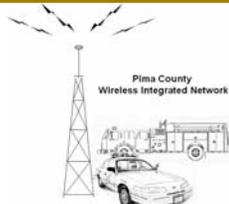
We experience "bleed over" during late night hours over the frequency. The problem has not been determine why this occurs.

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	25%	25%	40%	50%
Portables	30%	30%	45%	50%
Control Stations	13%	20%	30%	40%

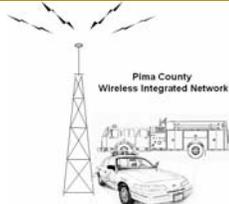
Page 8 of 10



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

Paging units	100%	100%	50%	50%
Other Devices				



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

Mobiles consist of both VHF and UHF radios

Portable consist of both VHF and UHF radios

Increase paging units within the 20 year span.

Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

Organization/Agency Name: Pascua Yaqui Police Department

Contact Name: Tracy E. Nielsen Position: Assistant Chief

Phone: 520-879-5638 Email: tracy.nielsen@pascuavaqui-nsn.gov

---

INSTRUCTIONS: Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

I: CURRENT SITUATION

Mobile data equipment do you currently have 22 Laptop computers

Age: 1-3 yrs Condition: 10 Adequate: 12

Mobile data functions that you currently have and use:

Computer Aided Dispatch: YES Name of CAD system: PARAZON

Access to Records Management: YES Name of RMS system: Parazon/Millennium

Records functions available: yes

Field Reporting: yes Automatic Vehicle Location (AVL): no

Email: no Outlook or web-based? n/a

Text Messaging: Car to car: no Car to dispatch: no

Query (Person, Vehicle, Property, etc) Local: no State: no National : no

---

 COMMUNICATIONS

Page 1 of 4



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

At present we only have about 46% coverage because of a lack of range with the antenna's and currently we only have 10 laptops issued.

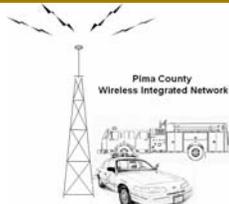
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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

99% coverage with CAD and Messaging ability. ACIC / NCIC ability in the vehicles. The computers would have to be upgraded as well as the stands because they are not statically located in the vehicle. This could cause injury should the air bag deploy.

\_\_\_\_\_  
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\_\_\_\_\_



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

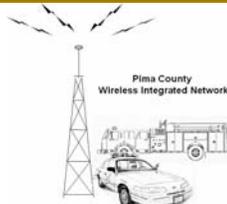
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	0	20	30	30	30
Wireless Handhelds (PDA's)	0	0	0	0	0
AVL equipped	0	0	0	0	0
Digital Pagers	54	0	65	65	65
Tone Voice Pagers					
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	30 per hour
Query (license checks, vehicle registrations, wanted persons, property checks)	less than 5 per hour
Car-to-car or car-to-dispatch message	0





#### 4. Computer Systems Checklist – Law Enforcement Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Law Enforcement Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Law Enforcement Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity, as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. The NFPA 1221 provisions have been adopted by the Commission on Accreditation for Law Enforcement Agencies (CALEA) for CAD systems. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

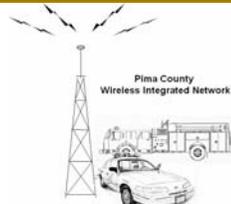
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

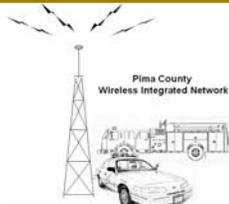


Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

**Law Enforcement Department Checklist**

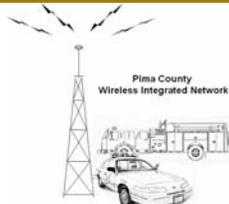
- 1) Department Name Pascua Police Department
- 2) Contact Name Hector V. Olivo
- 3) Contact Telephone Number 520-879-5514
- 4) Primary Response Area Pascua Yaqui Reservation  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 57 5 Year Growth 70
- 6) Number of Uniform vehicles  
Current 20 5 Year Growth 25
- 7) Number of Detective and radio equipped administrative vehicles  
Current 9 5 Year Growth 13
- 8) Number and description of specialized vehicles (such as SWAT, Command, Crime Scene, etc.)  
  
Description Detention  
  
Current 2 5 Year Growth 3  
  
Description Security  
  
Current 3 5 Year Growth 5



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

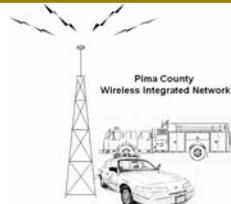
- Description Animal Control
- Current 1 5 Year Growth 2
- 9) Number of stations or precincts
- Current 1 5 Year Growth 1
- 10) Number of response zones or beats
- Current 1 5 Year Growth 1
- 11) Number of dispatched calls per year
- Current 5500 5 Year Growth 6000
- 12) Number of traffic stops per year
- Current 365 5 Year Growth 500
- 13) Number of on-view or officer initiated calls per year
- Current 850 5 Year Growth 1200
- 14) Number of Other calls requiring a unit (education, assist motorist, standby, etc.)
- Current 1000 5 Year Growth 1300
- 15) Number of calls (included above) that are out of your zone.
- Current 370 5 Year Growth 500
- 16) Number of calls (included above) that are out of Pima County.
- Current 10 5 Year Growth 15
- 17) Number of calls (included above ) that are out of Arizona.



- Current 0 5 Year Growth 0
- 18) Number of arrests per year (other than traffic citations)
- Current 1200 5 Year Growth 1500
- 19) Number of ACIC/NCIC requests
- Current 1500 5 Year Growth 2500
- 21) Number of case report numbers issued per year.
- Current 5500 5 Year Growth 6000
- 22) Number of Mobile Data terminals
- Current 0 5 Year Growth 20
- 23) Number of station computers or others that would log-on to the network
- Current 35 5 Year Growth 45
- 24) Number of personnel that would require an individual log-on password
- Current 57 5 Year Growth 70
- 25) Highest typical number of officers than are on duty.
- Current 5 5 Year Growth 5

**Provisions of NFPA 1221 and CALEA**

**Annex D Computer-Aided Dispatching (CAD) Systems**



**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

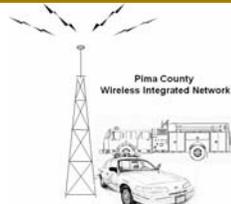
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

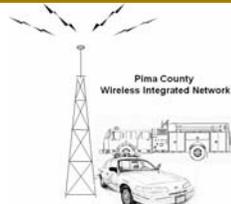
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

**D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



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National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

- Fire Rescue and Law Enforcement frequency bands
- PC Frequency list
- Pascua Yaqui 2000 demographics.pdf

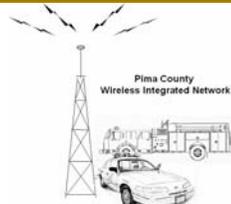


TABLE 2.1.11A Existing Interoperability

Fire Agencies		Police and Emergency Services Agencies		Federal Agencies		State	
Agency Types		Agency Types		Agency Types			
Pascua Pueblo FD		Pascua Pueblo FD		Pascua Pueblo FD		Bureau of Alcohol, Tobacco, Firearms & Explosives	
Pascua Yaqui PD		Pascua Yaqui PD		Pascua Yaqui PD		Customs and Border Protection	
	Ajo/Gibson Vol. FD		Marana PD			Drug Enforcement Administration	
	Arivaca Vol. FD		Oro Valley PD			Emergency Man. & Homeland Security	
	Avra Valley Fire District		Pascua Yaqui PD			Federal Bureau of Investigation	
	Corona de Tucson Fire District		Pima College Dept. of Public Safety			Immigration and Customs Enforcement	
	Drexel Heights Fire District		Pima County OEM & Homeland Security			National Park Service	
	Elephant Head Vol. FD		Pima County Sheriff's Dept.	X		Bureau of Land Management	
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo			U.S. Fish & Wildlife	
	Green Valley Fire District		Sahuarita PD			U.S. Forest Service	
	Helmet Peak Fire District		South Tucson PD			U.S. Marshals Service	
	Mt. Lemmon Fire District		Tohono O'odham Tribal Police			Arizona Dept. of Public Safety	
	Northwest Fire District		Tucson Airport Authority PD			Arizona Game and Fish	
	Pascua Pueblo FD		Tucson PD				
	Picture Rocks Fire District		University of Arizona Police				
	Rincon Valley Fire District						
	Rural Metro Fire/Southwest Ambulance						
	South Tucson FD						
	Three Points FD						
	Tohono O'odham FD						
	Tucson Airport Authority FD						
	Tucson FD						
	Ajo Ambulance						
	Why Fire District						

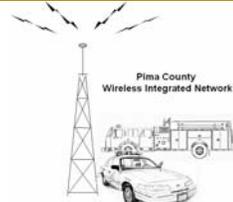


TABLE 2.1.11B Future Interoperability

Agency Types		Fire Agencies		Police and Emergency Services Agencies		Federal Agencies		Agencies	
Pascua Pueblo FD		Ajo/Gibson Vol. FD		Pascua Pueblo FD		Bureau of Alcohol, Tobacco, Firearms & Explosives		Arizona Dept. of Public Safety	X
Pascua Yaqui PD		Arivaca Vol. FD		Pascua Yaqui PD	X	Customs and Border Protection		Arizona Game and Fish	
		Avra Valley Fire District		Pima College Dept. of Public Safety		Drug Enforcement Administration			
		Corona de Tucson Fire District		Pima County OEM & Homeland Security		Emergency Man. & Homeland Security			
	X	Drexel Heights Fire District		Pima County Sheriff's Dept.	X	Federal Bureau of Investigation	X		
	X	Elephant Head Vol. FD		Pima County Sheriff's Dept. - Ajo		Immigration and Customs Enforcement			
		Golder Ranch Fire District		Sahuarita PD		National Park Service			
		Green Valley Fire District		South Tucson PD		Bureau of Land Management			
		Helmet Peak Fire District		Tohono O'odham Tribal Police		U.S. Fish & Wildlife			
		Mt. Lemmon Fire District		Tucson Airport Authority		U.S. Forest Service			
		Northwest Fire District		Tucson PD	X	U.S. Marshals Service			
	X	Pascua Pueblo FD		University of Arizona Police		Arizona Dept. of Public Safety	X		
		Picture Rocks Fire District							
		Rincon Valley Fire District							
		Rural Metro Southwest Ambulance							
		South Tucson FD							
		Three Points FD							
		Tohono O'odham FD							
		Tucson Airport Authority FD							
		Tucson FD							
		Ajo Ambulance							
		Why Fire District							

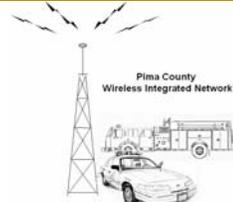
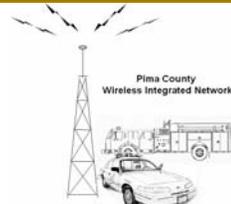


TABLE 2.1.11C  
 Pascua Yaqui Police Department & Pascua Pueblo Fire Department

DESIGNATOR NO.	ATTRIBUTE	Pascua Yaqui Police Dept.	COMMENTS	Pascua Pueblo Fire Dept.	COMMENTS
<b>Radio Coverage</b>					
1	Improved Voice Radio Coverage – Eastern County	2.0			
2	Improved Voice Radio Coverage – Central County	3.0			
3	Improved Voice Radio Coverage – Western County	0.0			
4	In-building Coverage	3.0			
5	Minimize Local Interference	3.0			
<b>Voice Radio Operations</b>					
6	Increased Channel Capacity	3.0			
7	On-scene Fire Channels	0.0			
8	Monitored Firegrounds	0.0			
9	Emergency Alerting	2.0			
10	Workgroup Oriented Operation	2.0			
11	Voice Security	3.0			
12	Operational Boundary Transparency	2.0			
13	One System Serves All Agencies	2.0			
14	Interoperability through Dispatch	3.0			
15	Interoperability with Adjacent Counties	2.0			
16	Interoperability with State Agencies	1.0			
17	Interoperability with Federal Agencies	1.0			
18	Person Location	2.0			
19	System Control	3.0			
20	Recorded Operations	4.0			
21	Simplified User Operations	3.0			
<b>Dispatch Operations</b>					
22	Increased Dispatch Channel Capacity	2.0			
23	Dispatch Capacity	2.0			
24	Dispatch Coverage	2.0			
<b>Mobile Data Functions</b>					
25	One Mobile Data Network Serves All Agencies	3.0			
26	Cross CAD Interconnection	3.0			
27	Mobile Data Criticality	2.0			
28	Vehicle Location	2.0			
29	EMS Telemetry	1.0			
30	High-Speed Broadband Service	1.0			
31	Mobile Applications	2.0			
32	Advanced Mobile Applications	2.0			
33	Access County Information	3.0			
<b>Paging and Alerting Operations</b>					
34	Private Personnel Paging	3.0			
35	Fire Station Alerting	2.0			
36	Paging over Cellular	2.0			
<b>Infrastructure Capabilities</b>					
37	Future Expansion	2.0			
38	Owner-Controlled Backbone	2.0			
39	Microwave Connectivity	1.0			
40	Microwave Additional Capacity	1.0			
41	Regional Connectivity	0.0			
<b>Reliability and Availability</b>					
42	Survivability	5.0			
43	Reliability/Failure Hierarchy	4.0			
44	Single Points of Failure	3.0			
45	Power Backup	4.0			
<b>Training and Maintenance</b>					
46	Staffing and Training	3.0			
47	Centralized Maintenance	3.0			
<b>Cost and Procurement</b>					
48	Competitive Procurement Process	3.0			
49	Commonality of Equipment	3.0			
50	Multiple Sources	2.0			
51	Phased Implementation	2.0			
52	Tiered Subscriber Cost	2.0			
Ranking Scale 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.					



## 2.1.12 Pima College Department of Public Safety

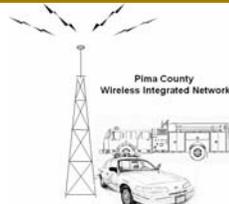
### A. Current Environment

#### 1. Operational

The Pima Community College (PCC) Department of Public Safety is a fully certified law enforcement department. The Director of the Department of Public Safety reports to the Vice Chancellor for Finance and Administrative Services. In addition to the Director, the department is authorized under one commander, five sergeants, twenty-nine certified police officers, twelve non-certified community service officers, a communications center supervisor, five full time and six part-time dispatchers, and two administrative support specialists. Also employed are part-time student aides that assist with non-law enforcement tasks. In addition to College staff, the department is supplemented by contract security personnel who provide general security service during late evening and weekend hours.

#### 2. Functional

The Pima Community College Public Safety law enforcement officers are sworn officers with full law enforcement authority and certified by the state of Arizona. They are responsible for patrolling the various community college facilities in the Tucson area. The department has an authorized strength of twenty-nine sworn officers. They are several short of their authorized strength. The officers work ten hour shifts. They are organized into four different squads (two days/ two nights). Typically there are ten to twelve officers and community service officers on each squad. From midnight until 6 am there are no sworn officers on duty. There is one roving Community Service Officer on duty from midnight until 6 am.



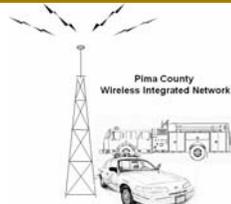
Pima Community College consists of six different campuses: Community Campus, Desert Vista Campus, Downtown Campus, East Campus, Northwest Campus, West Campus and five learning centers: Northeast Learning Center, Public Safety and Emergency Institute, Southeast Learning Center, Community Learning and Performing Arts Center in Green Valley, Davis-Monthan Air Force Base Learning Center. There are three Community Campus Units: Center for Training and Development, Pima County Adult Basic Education, and Center for Business Solutions. There are four adult education centers. It is the seventh largest community college system in the country. The total enrollment is approximately 30,000 students.

The Pima Community College Department of Public Safety headquarters and dispatch center is located in the colleges Maintenance and Security facility. The Communications Center is part of the Administrative Services Division. The Center is staffed with four full-time and three part-time dispatchers. The dispatchers work ten hour shifts. They monitor numerous alarms and also enter reports into the records system.

### 3. Technical

The PCC radio system has been in place for four (4) years. It is a Motorola 7-site simulcast system equipped with 2 channels operating in the 800 MHz frequency band:

- District Central Offices
- East Campus
- District Support Service Center
- West Campus
- Community Campus
- Main Station
- North West Campus



The simulcast sites and the Communications Center are connected together with Quest T1 lines. The repeater base stations are 100 watt Quantars stations are used. The Police Department radio inventory includes:

XTS 3000 portables - (60 / 15 spare)  
Spectra Plus mobiles - (15).

The College Facilities Department are equipped with private UHF radios for maintenance activities.

The Communications Center is available 24 hours/ 7 days per week. The Pima Community College Department of Public Safety Dispatch Center is a two position center. The dispatch positions are Gold Elite consoles. A Dictaphone system records the voice traffic. There is also a partial position in the Supervisor's office and in the Sergeant's office. The department uses the Pima County Spillman CAD/RMS system. They also have "Read-Only" capability on the Tucson Police Department's records system. They have an authorized staff of six full-time dispatchers and ten part-time dispatchers.

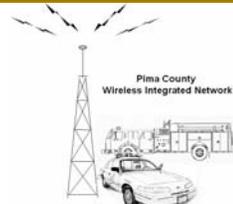
#### 4. Interoperability

TABLE 2.1.12A shows the existing direct interoperability capabilities with other agencies for Pima College DPS. The Police Department is utilizing 800 MHz frequencies and this complicates radio communications with Tucson Police Department because they operate on another band – VHF.

### B. Positive Attributes of Current Environment

#### 1. Operational

The system has performed well but the growth and expansion of the campus will need to be addressed in the long-term.



2. Functional

While currently adequate, the system will need to expand, resulting in more repeater sites to meet the growth of the college campuses.

While the majority of the time adequate, the Quest T1 lines have occasional reliability issues that impacts the Police Department's radio system.

3. Technical

C. Desired Attributes of Current and Future Environment

1. Operational

The system should include additional channels to support increased radio activity, interoperability, and reliable microwave or fiber optics links to improve reliability.

2. Functional

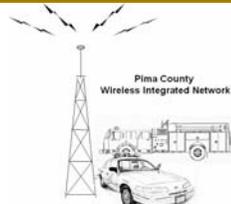
The system should incorporate another radio repeater site to better serve law enforcement operations on campus.

3. Technical

The system should be upgraded to a Project 25 system to modernize the network and facilitate interoperability requirements.

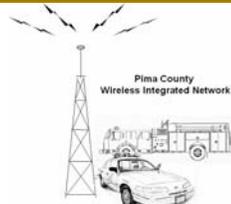
4. Interoperability Matrix

TABLE 2.1.12B shows the future direct interoperability requirements with other agencies for the Pima College DPS. It is desirable to have common frequencies or talk-groups available to simplify radio protocol procedures and monitoring to facilitate interoperability with other agencies.



5. Attributes Matrix

Please refer to TABLE 2.1.12C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: - Pima County Community College

File Name: - 030206PimaCommunityCollegeFINAL\_.doc

Date of Interview: - March 2, 2006

Location of Interview: - Pima County Sheriff's Office  
1750 E. Benson Highway  
Tucson, Arizona 85714

Persons Interviewed: - Cheryl Smart, Dispatch Supervisor  
Manny Amado, PCCDPS – Commander Patrol /  
Communications  
Daniel Simmons, Sergeant

CTA Interviewers: - Harry Rote, Sr. Systems Engineer  
Gary Mountcastle, Sr. Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. Pima Community College law enforcement officers are sworn officers with full law enforcement authority and certified by the state of Arizona. They are responsible for patrolling the various community college facilities in the Tucson area.

Present Situation

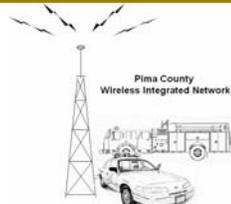
1. The PCC system has been in place for 4 years and is a Motorola 7 site simulcast system with 2 channels. 100 W Quantar base stations are used. Portables are XTS 3000 (60 / 15 spare) and Mobiles are Spectra Plus (15).
2. Quest T1 interconnects the simulcast sites.

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CTA Communications, Inc.

1

Lynchburg, VA



3. Dispatch is available 24/7 and is done through Gold Elite consoles. A Dictaphone system records the voice traffic.
4. Facilities have their own private UHF radios for maintenance activities.

Present Problems

1. Growth in region may increase the required coverage area.
2. The Quest T1s can have reliability issues.

Future Requirements

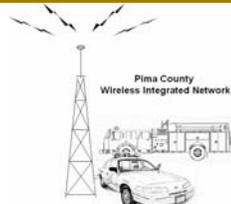
1. May need to expand coverage area due to growth.

The draft of this record was sent to Captain Paul Wilson on March 29, 2006.

Corrected draft was returned to CTA Communications on April 13, 2006.

Captain Paul Wilson  
1750 E. Benson Highway  
Tucson, Arizona 85714

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Planning\interview\Final\030206PimaCommunityCollegeFINAL\_.doc



2. Radio Usage Form

4

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

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**Organization/Agency Name:** Pima Community College DPS  
**Contact Name:** Chesyl Smart **Position:** Dispatch Supervisor  
**Phone:** (520) 206-2679 **Email:** Chesyl.Smart@pima.edu

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Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

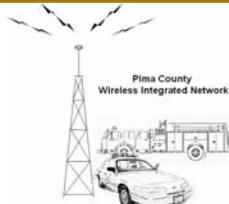
**I: RADIO UTILIZATION CURRENT SITUATION**

a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

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Page 1 of 7



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	13	5	5		
Portables	60	25	21		
Control Stations	1				
Paging units	All Radios have paging capabilities				
Other Devices	4 cell phones	6 PDAs			

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

*All Radios operate on digital 800 MHz*

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c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles	14	Yes



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans	1	yes
Buses		
Cars		
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
6680 S. Country Club, Tucson Az	One (1) Motorola 700 MHz Digital Centra Com Gold Elite	Law Enforcement
	2 dispatch positions	
Portable	Motorola Astron	L.E.





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**Clarifications:**

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**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Digital frequency can drift		✓				
Users must speak directly into the mic		✓				
* T1 lines (Quest) go down especially				✓		





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	10	15	17	20
Portables	67	72	82	92
Control Stations	2	2	4	4
Paging units	67			
Other Devices	MDT'S			

**Clarifications:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Thank you for your assistance.

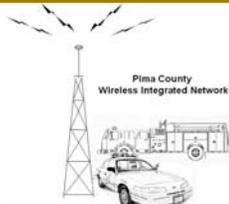
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
 P.O. Box 4579  
 Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
 Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** Pima Community College Department of Public Safety

**Contact Name:** Sgt. Dan Simmons

**Position:** Administrative Sergeant

**Phone:** (520) 206-2669

**Email:** dsimmons@pima.edu

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

#### I: CURRENT SITUATION

Mobile data equipment do you currently have None

Age: \_\_\_\_\_ Condition: \_\_\_\_\_ Adequate: \_\_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: \_\_\_\_\_ Name of CAD system: \_\_\_\_\_

Access to Records Management: \_\_\_\_\_ Name of RMS system: \_\_\_\_\_

Records functions available: \_\_\_\_\_

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_\_

Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging: Car to car: \_\_\_\_\_ Car to dispatch: \_\_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_\_ State: \_\_\_\_\_ National : \_\_\_\_\_



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

All items are desired long term and not necessarily needs; would reduce Dispatch workload/response times and increase officer efficiency.

CAD Dispatch: Current CAD system is Spillman Data Services 4.5

AVL: Currently 14 vehicles; projected to grow to 20 in 20 years.

RMS: Read only from MDT

Field Reporting: Clearances

Text Messaging: Car to car & car to Dispatch

Query: Local, state & national.

Mug Shots

Geographical Area: Entire metro area short term with extensions to Marana, Green Valley & Vail long term.

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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

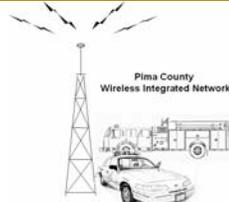
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	0	0	0	14	20
Wireless Handhelds (PDA's)	0	0	0	14	20
AVL equipped	0	0	0	14	20
Digital Pagers	0	0	0	0	0
Tone Voice Pagers	0	0	0	0	0
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour _____ or per day _____
CAD Dispatch	5 per hour
Query (license checks, vehicle registrations, wanted persons, property checks)	5-10 per hour
Car-to-car or car-to-dispatch message	2 per hour





#### 4. Computer Systems Checklist – Law Enforcement Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Law Enforcement Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Law Enforcement Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. The NFPA 1221 provisions have been adopted by the Commission on Accreditation for Law Enforcement Agencies (CALEA) for CAD systems. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

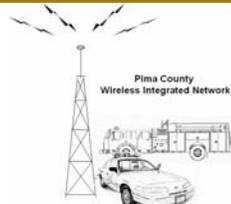
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

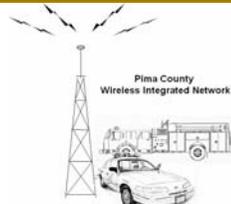


Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

**Law Enforcement Department Checklist**

- 1) Department Name Pima Community College DPS
- 2) Contact Name Cheryl Smart
- 3) Contact Telephone Number (520)206-2679
- 4) Primary Response Area Tucson city wide  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 48 5 Year Growth 55
- 6) Number of Uniform vehicles  
Current 11 5 Year Growth 15
- 7) Number of Detective and radio equipped administrative vehicles  
Current 0 5 Year Growth 2
- 8) Number and description of specialized vehicles (such as SWAT, Command, Crime Scene, etc.)  
Description swat  
Current 0 5 Year Growth 0  
Description Command  
Current 0 5 Year Growth 1



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

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Description Crime Scene

Current 0 5 Year Growth 1

9) Number of stations or precincts

Current 6 5 Year Growth 6

10) Number of response zones or beats

Current 5 5 Year Growth 5

11) Number of dispatched calls per year

Current 6075 5 Year Growth 8000

12) Number of traffic stops per year

Current 543 5 Year Growth 800

13) Number of on-view or officer initiated calls per year

Current 2,800 5 Year Growth 7,000

14) Number of Other calls requiring a unit (education, assist motorist, standby, etc.)

Current 6075 5 Year Growth 8,000

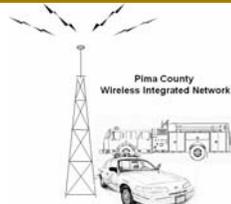
15) Number of calls (included above) that are out of your zone.

Current 152 5 Year Growth 175

16) Number of calls (included above) that are out of Pima County.

Current 0 5 Year Growth 0

17) Number of calls (included above ) that are out of Arizona.



Current 0 5 Year Growth 0

- 18) Number of arrests per year (other than traffic citations)

Current 244 5 Year Growth 300

- 19) Number of ACIC/NCIC requests

Current 18,234 5 Year Growth 25,000

- 21) Number of case report numbers issued per year.

Current 6,816 5 Year Growth 7,815

- 22) Number of Mobile Data terminals

Current 0 5 Year Growth 15

- 23) Number of station computers or others that would log-on to the network

Current 7 5 Year Growth 15

- 24) Number of personnel that would require an individual log-on password

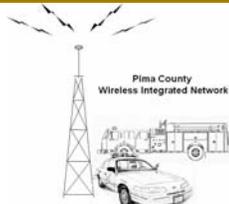
Current 14 5 Year Growth 20

- 25) Highest typical number of officers than are on duty.

Current 11 5 Year Growth 15

#### Provisions of NFPA 1221 and CALEA

#### Annex D Computer-Aided Dispatching (CAD) Systems



**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

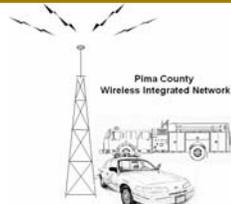
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

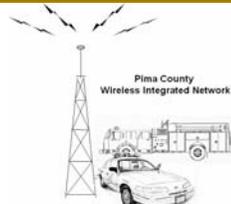
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

**D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

- System design coverage maps (MOT)
- Summary of Current Communications System
- Law enforcement frequency bands
- Radio locations and frequencies
- Department organizational chart
- Law enforcement predicted growth
- Radio station licensee

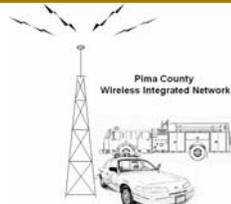


TABLE 2.1.12A Existing Interoperability

Agency Types	Fire Agencies	Police and Emergency Services Agencies	Agency Types	Federal Agencies	State
Pima College Dept. of Public Safety	Ajo/Gibson Vol. FD		Pima College Dept. of Public Safety	Bureau of Alcohol, Tobacco, Firearms & Explosives	
	Arivaca Vol. FD			Customs and Border Protection	
	Avra Valley Fire District			Drug Enforcement Administration	
	Corona de Tucson Fire District	Marana PD		Emergency Man. & Homeland Security	
	Drexel Heights Fire District	Oro Valley PD		Federal Bureau of Investigation	
	Elephant Head Vol. FD	Pascua Yaqui PD		Immigration and Customs Enforcement	
	Golder Ranch Fire District	Pima College Dept. of Public Safety		National Park Service	
	Green Valley Fire District	Pima County OEM & Homeland Security		Bureau of Land Management	
	Helmet Peak Fire District	Pima County Sheriff's Dept.	X	U.S. Fish & Wildlife	
	Mt. Lemmon Fire District	Pima County Sheriff's Dept. - Ajo		U.S. Forest Service	
	Northwest Fire District	Sahuarita PD		U.S. Marshals Service	
	Pascua Pueblo FD	South Tucson PD		Arizona Dept. of Public Safety	
	Picture Rocks Fire District	Tohono O'odham Tribal Police		Arizona Game and Fish	
	Rincon Valley Fire District	Tucson Airport Authority PD			
	Rural Metro Fire/Southwest Ambulance	Tucson PD	X		
	South Tucson FD	University of Arizona Police			
	Three Points FD				
	Tohono O' odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				

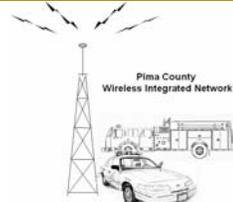
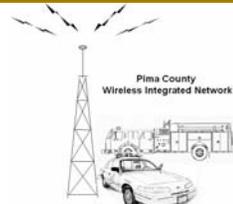


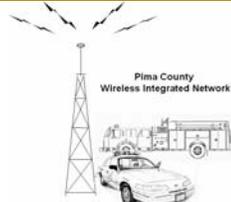
TABLE 2.1.12B Future Interoperability

Agency Types		Agency Types		Agency Types	
Pima College Dept. of Public Safety		Pima College Dept. of Public Safety		Pima College Dept. of Public Safety	
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives
	Arivaca Vol. FD		Oro Valley PD	X	Customs and Border Protection
	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration
	Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security
	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation
	Elephant Head Vol. FD		Pima County Sheriff's Dept.	X	Immigration and Customs Enforcement
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service
	Green Valley Fire District		Sahuarita PD		Bureau of Land Management
	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife
	Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service
	Northwest Fire District		Tucson Airport Authority		U.S. Marshals Service
	Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety
	Picture Rocks Fire District		University of Arizona Police	X	Arizona Game and Fish
	Rincon Valley Fire District				
	Rural Metro Southwest Ambulance				
	South Tucson FD				
	Three Points FD				
	Tohono O'odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				



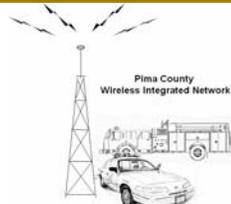
**TABLE 2.1.12C**  
**Pima College Department of Public Safety**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	5.0	
2	Improved Voice Radio Coverage – Central County	0.0	
3	Improved Voice Radio Coverage – Western County	0.0	
4	In-building Coverage	5.0	
5	Minimize Local Interference	5.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	0.0	
7	On-scene Fire Channels	1.0	
8	Monitored Firegrounds	0.0	
9	Emergency Alerting	5.0	
10	Workgroup Oriented Operation	2.0	
11	Voice Security	1.0	
12	Operational Boundary Transparency	1.0	
13	One System Serves All Agencies	0.0	
14	Interoperability through Dispatch	4.0	
15	Interoperability with Adjacent Counties	0.0	
16	Interoperability with State Agencies	2.0	
17	Interoperability with Federal Agencies	2.0	
18	Person Location	2.0	
19	System Control	2.0	
20	Recorded Operations	5.0	
21	Simplified User Operations	4.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	2.0	
23	Dispatch Capacity	5.0	
24	Dispatch Coverage	5.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	0.0	
26	Cross CAD Interconnection	2.0	
27	Mobile Data Criticality	3.0	
28	Vehicle Location	3.0	
29	EMS Telemetry	0.0	
30	High-Speed Broadband Service	2.0	
31	Mobile Applications	5.0	
32	Advanced Mobile Applications	4.0	
33	Access County Information	3.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	3.0	
35	Fire Station Alerting	0.0	
36	Paging over Cellular	2.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	5.0	
38	Owner-Controlled Backbone	2.0	
39	Microwave Connectivity	2.0	
40	Microwave Additional Capacity	2.0	
41	Regional Connectivity	2.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	5.0	
47	Centralized Maintenance	3.0	



**TABLE 2.1.12C**  
**Pima College Department of Public Safety**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	5.0	
49	Commonality of Equipment	2.0	
50	Multiple Sources	2.0	
51	Phased Implementation	2.0	
52	Tiered Subscriber Cost	5.0	
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



2.1.13 Rincon Valley Fire District

A. Current Environment

1. Operational

Rincon Valley Fire Department is moving into two stations in June and is building a third in the next two years. Call volume is up 57%, to about 1000 calls per year with 85% attributable to EMS and 15% to fire.

Currently Drexel Heights Communications Center provides fire and rescue dispatch support for Rincon Valley, but will be switching to Rural Metro dispatch in July 2006.

2. Functional

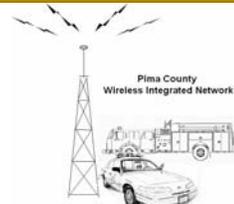
The Rincon Valley Fire Department has coverage issues east of I-10 in the valley.

3. Technical

The Fire Department utilizes two UHF channels, one is repeated and one is simplex. There is a 65 foot monopole at one of the stations.

The department is equipped with Kenwood, Bendix King, and Icom mobiles and portable and there is a mix of UHF and VHF radios. 8 Mobiles are UHF and 20 portables are UHF:

Radio Units	Inventory	Shift 1	Shift 2	Shift 3
Mobiles	16	10	10	10
Portables	20	28	28	28
Control Stations	2	210	10	10
Paging Units	28	10	10	10



4. Interoperability

TABLE 2.1.13A shows the existing direct interoperability capabilities with other agencies for the department. The Fire Department is equipped with VHF radio equipment and UHF radio to maximize interoperability communications with agencies.

B. Positive Attributes of Current Environment

1. Operational

A mix of VHF and UHF radios are used to facilitate communications with various agencies.

2. Functional

Any system upgrades should contribute to improving coverage performance especially in the south east.

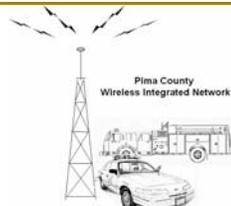
3. Technical

Rincon Valley is joining the City of Tucson for mobile data needs and is a participant in the new IP MobileNet system.

C. Desired Attributes of Current and Future Environment

1. Operational

Rincon Valley Fire would like simple reliable portables that can be operated by feel, a safety position (locked) on radios, less rubber and plastic parts, and battery reconditioners.



They generally do not buy intrinsically safe models. This department is open to convenient ways to radio monitor firefighter vital signs.

2. Functional

Improved coverage east of I-10 in the valley

3. Technical

They would like a small short range intercom-type function. They would like a wireless link from the accessories to the radio on the belt.

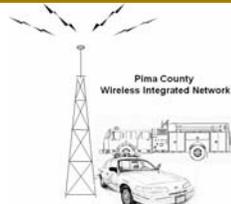
4. Interoperability Matrix

The Fire Department should have radio interoperability with the local Fire Departments and hospitals as well as the Tucson Police Department and the Pima County Sheriff's Office.

TABLE 2.1.13B shows the future direct interoperability capabilities with other agencies for the department. It is desirable to have common frequencies or gateway patches to facilitate interoperability with other agencies.

5. Attributes Matrix

Please refer to TABLE 2.1.13C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Rincon Valley Fire Department  
Mt. Lemmon Fire Department  
Green Valley Fire Department  
Drexel Heights Fire Department

**File Name:** - 030306 County Fire Department 1 Final doc.

**Date of Interview:** - March 03, 2006

**Location of Interview:** - Pima County Sheriff Department

**Persons Interviewed:** - Dennis Rankin, Captain, Mt. Lemmon FD  
Ken Shultz, Ops Captain, Green Valley FD  
Lee Buckley, Asst. Chief, Rincon Valley FD  
Steven Campbell, Bat, Chief, Drexel Heights FD

**CTA Interviewer:** - David Anderson, Senior Systems Engineer  
Roscoe Mitchell, Communications Specialist

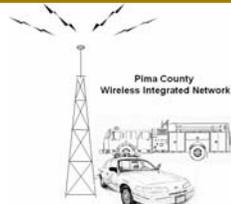
The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Mt. Lemmon Fire Department covers a 12.5 square miles area.
2. Drexel Heights Fire Department covers a 91 square miles area.

**Present Situation**

1. Rincon Valley Fire Department has two stations moving in June and building a third in the next two years. They have two UHF channels, one is repeated and one is simplex. They have a 65 foot monopole at the first station. Their call volume is up 57%, 1000 call volume a year with 85% to EMS and 15% to fire.



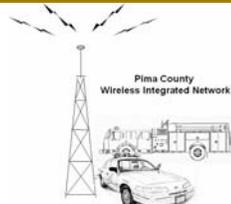
2. Mt. Lemmon Fire Department has two prime sites at Mt. Lemmon and Mt. Bigelow and one repeater at Loma Linda Tanks. They have three UHF simplex frequencies. They only do EMS calls and no transport of patients. They receive 300 calls a year with 80% EMS and 3% Fire.
3. Green Valley Fire Department has four Fire and EMS stations, but Southwest Ambulance does the transporting of patients to hospitals. They are dispatched by Drexel Heights, but switching to Rural Metro in July. They have two repeated frequencies and one simplex; La Canada Fire Station and Elephant Head. Record Management System is Emergency Reporting and mapping is a system from Mapping Solutions. Cox Cable is looking to use two stations as wireless points.
4. Drexel Heights Fire Department has four stations with UHF and VHF channels. They have two repeated channels and two simplex channels. The repeater is located at Beehive Peak. They receive about 6000 calls a year.
5. Preferred portable radios include Kenwood, Bendix King, and Icom.
6. Drexel Heights uses GEO 911 CAD (the same as Marana) and has a need for mobile data. They plan on using the GEO Mobile module over one channel of the IP MobileNet being put in by the City of Tucson. Their functionality goals include AVL and access to GIS information. Rincon FD is also going with IP Mobilenet.
7. Green Valley FD is installing in-vehicle mapping and AVL. Laptops in the truck will run "Mapping Solutions" software. Green Valley plans to equip with Wi-Fi since their area is partly within the Canamex corridor. Cox Communication's network will be involved with expanding the Canamex project.

**Present Problems**

1. Rincon Valley has coverage problems east of I-10 in the valley.

**Future Requirements**

1. Green Valley Fire Department is planning to build 3 Stations in the next 5 years.
2. Drexel Heights Fire Department would like to see UHF and VHF frequencies realigned for less interference. They would like to monitor the simplex frequencies.



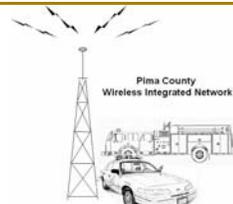
3. They like simple reliable portables that can be operated by feel, a safety position (locked) on radios, less rubber and plastic parts, and battery reconditioners. They generally do not buy intrinsically safe models.
4. These departments are open to convenient ways to radio monitor firefighter vital signs. They would like a small short range intercom-type function. They would like a wireless link from the accessories to the radio on the belt.

The draft of this record was sent to Captain Paul Wilson on March 31, 2006.

Corrected draft was returned to CTA Communications on April 5, 2006.

Interviewee Name & Address:  
Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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2. Radio Usage Form

RINCON VALLEY FD - RADIO 4

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

Organization/Agency Name: Rincon Valley Fire Dept.

Contact Name: Lee Bucklin Position: Asst. Chief

Phone: (520) 647-3760 Email: LBucklin@rinconvalleyfd.org

---

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

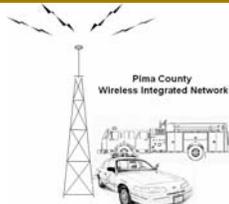
**I: RADIO UTILIZATION CURRENT SITUATION**

a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C - F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

---

 Page 1 of 7



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	
Mobiles	16	10	10	10		
Portables	20	28	28	28		
Control Stations	2	10	10	10		
Paging units	28	10	10	10		
Other Devices						

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

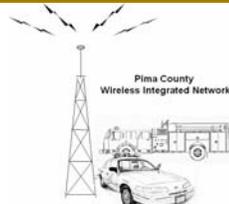
mobiles = UHF 8  
 VHF 8  
 Ports = 20 UHF

**Clarifications:**

Mobiles - 8 UHF in 450-490 MHz, 8 VHF  
 Portables - 20 UHF in 450-490 MHz. Can have 28 people on air.

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	1	NO
Water Tender	2	NO
Pumper/ Engine	2	NO
Ladder Truck		
Ambulance	3	NO
Patrol Vehicles	8	



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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Jail Transport	0	
Special Ops	0	
Vehicular Repeaters *	0	
Disposal Collector	0	
Maintenance Truck	0	
Utility Trucks	1	yes
Highway Maintenance	0	
Vans	0	
Buses	0	
Cars	0	
Other (Please Describe) J.C.	2	1 no 1 yes

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

\_\_\_\_\_

\_\_\_\_\_

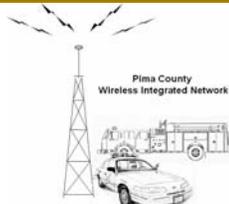
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
5850 S. Camino Loma Alta	1	
13820 E. Benson Hwy	1	





Pima County, Arizona  
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**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

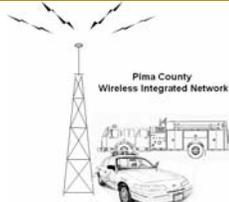
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\_\_\_\_\_

**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Radio Coverage in South East Area						X
Radio interference			X			





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

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**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	7	2	2	2
Portables	20	9	9	9
Control Stations	2	1	0	0
Paging units	20	9	9	9
Other Devices				

**Clarifications:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Thank you for your assistance.

Please hand this survey in during your interview or return to:

CTA Communications, Inc.  
 P.O. Box 4579  
 Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
 Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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3. Mobile Data Survey

RINCON VALLEY FD - MD 4

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** Rincon Valley Fire Dept.

**Contact Name:** Lee Bucklin **Position:** Asst. Chief

**Phone:** (520)647-3760 **Email:** LBucklin@rinconvalleyfd.org

---

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have: Kenwood, Icom, GE

Age: 1-10 years Condition: Good Adequate?: Kenwood & Icom yes. GE. No

Mobile data functions that you currently have and use:

Computer Aided Dispatch: \_\_\_\_\_ Name of CAD system: \_\_\_\_\_

Access to Records Management: \_\_\_\_\_ Name of RMS system: \_\_\_\_\_

Records functions available: \_\_\_\_\_

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_\_

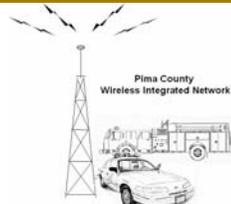
Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging: Car to car: \_\_\_\_\_ Car to dispatch: \_\_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_\_ State: \_\_\_\_\_ National: \_\_\_\_\_

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 Page 1 of 4



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

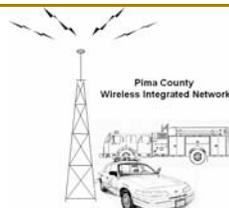
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\_\_\_\_\_

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

would like to have all units with AVL in the  
next 2-3 years. Need to upgrade older  
radios.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

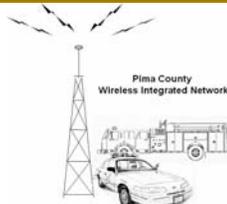
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	Currently in service		USAGE		
	On Hand	Un-met Needs	Estimated Future Needs (use either number of units or % growth)		
			2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	0	9	4	3	3
Wireless Handhelds (PDA's)	0	6	3	2	1
AVL equipped	0	9	4	3	3
Digital Pagers	28	0	12	10	10
Tone Voice Pagers	0				
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions	
	per hour	or per day
CAD Dispatch	6	
Query (license checks, vehicle registrations, wanted persons, property checks)	0	
Car-to-car or car-to-dispatch message	20	
Status updates	10	





4. Computer Systems Checklist – Fire & EMS Departments

None.

5. Documentation Provided

- Fire Rescue Frequency Bands

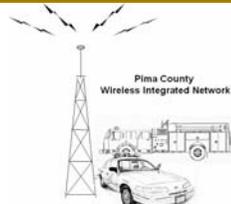
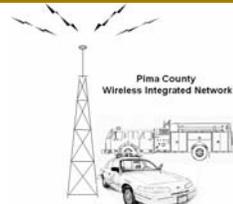
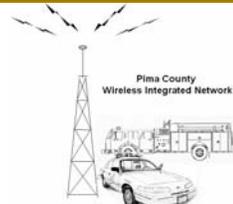


TABLE 2.1.13A Existing Interoperability

Agency Types	Fire Agencies	Police and Emergency Services Agencies	Federal Agencies	State
Rincon Valley Fire District	Ajo/Gibson Vol. FD		Bureau of Alcohol, Tobacco, Firearms & Explosives	
	Arivaca Vol. FD		Customs and Border Protection	
	Avra Valley Fire District		Drug Enforcement Administration	
	Corona de Tucson Fire District		Emergency Man. & Homeland Security	
	Drexel Heights Fire District		Federal Bureau of Investigation	
	Elephant Head Vol. FD		Immigration and Customs Enforcement	
	Golder Ranch Fire District		National Park Service	
	Green Valley Fire District		Bureau of Land Management	
	Helmet Peak Fire District		U.S. Fish & Wildlife	
	Mt. Lemmon Fire District		U.S. Forest Service	
	Northwest Fire District		U.S. Marshals Service	
	Pascua Pueblo FD		Arizona Dept. of Public Safety	
	Picture Rocks Fire District		Arizona Game and Fish	
	Rincon Valley Fire District			
	Rural Metro Fire/Southwest Ambulance			
	South Tucson FD			
	Three Points FD			
	Tohono O' odham FD			
	Tucson Airport Authority FD			
	Tucson FD			
	Ajo Ambulance			
	Why Fire District			

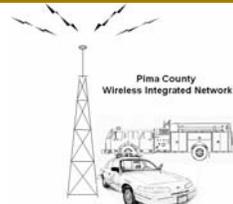


Agency Types		Agency Types		Agency Types	
Rincon Valley Fire District		Rincon Valley Fire District		Rincon Valley Fire District	
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives
	Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection
	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration
	Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security
X	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation
	Elephant Head Vol. FD		Pima County Sheriff's Dept.	X	Immigration and Customs Enforcement
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service
	Green Valley Fire District		Sahuarita PD		Bureau of Land Management
	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife
	Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service
	Northwest Fire District		Tucson Airport Authority		U.S. Marshals Service
	Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety
	Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish
	Rincon Valley Fire District				
	Rural Metro Southwest Ambulance				
	South Tucson FD				
	Three Points FD				
	Tohono O'odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				



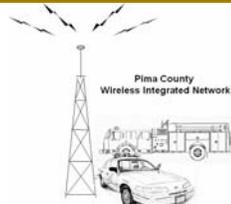
**TABLE 2.1.13C**  
**Rincon Valley Fire District**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	4.0	
2	Improved Voice Radio Coverage – Central County	1.0	
3	Improved Voice Radio Coverage – Western County	1.0	
4	In-building Coverage	3.0	
5	Minimize Local Interference	3.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	2.0	
7	On-scene Fire Channels	3.0	
8	Monitored Firegrounds	3.0	
9	Emergency Alerting	4.0	
10	Workgroup Oriented Operation	2.0	
11	Voice Security	2.0	
12	Operational Boundary Transparency	2.0	
13	One System Serves All Agencies	3.0	
14	Interoperability through Dispatch	3.0	
15	Interoperability with Adjacent Counties	3.0	
16	Interoperability with State Agencies	3.0	
17	Interoperability with Federal Agencies	2.0	
18	Person Location	3.0	
19	System Control	2.0	
20	Recorded Operations	2.0	
21	Simplified User Operations	2.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	1.0	
23	Dispatch Capacity	3.0	
24	Dispatch Coverage	2.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	2.0	
26	Cross CAD Interconnection	3.0	
27	Mobile Data Criticality	3.0	
28	Vehicle Location	3.0	
29	EMS Telemetry	3.0	
30	High-Speed Broadband Service	3.0	
31	Mobile Applications	3.0	
32	Advanced Mobile Applications	3.0	
33	Access County Information	3.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	2.0	
35	Fire Station Alerting	3.0	
36	Paging over Cellular	2.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	3.0	
38	Owner-Controlled Backbone	2.0	
39	Microwave Connectivity	2.0	
40	Microwave Additional Capacity	2.0	
41	Regional Connectivity	2.0	
<b>Reliability and Availability</b>			
42	Survivability	2.0	
43	Reliability/Failure Hierarchy	3.0	
44	Single Points of Failure	3.0	
45	Power Backup	4.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	3.0	
47	Centralized Maintenance	1.0	



**TABLE 2.1.13C**  
**Rincon Valley Fire District**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	2.0	
49	Commonality of Equipment	2.0	
50	Multiple Sources	2.0	
51	Phased Implementation	2.0	
52	Tiered Subscriber Cost	2.0	
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.1.14 Sahuarita Police Department

### A. Current Environment

#### 1. Operational

Sahuarita Police Department (SPD) operates south of Tucson in a 30 square mile area straddling I19. The area is known for its pecan farms. The department has been in operation for 8 ½ years.

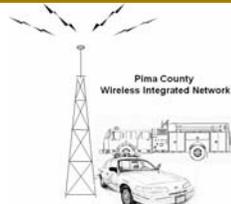
Dispatch services are currently contracted with South Tucson Police. The department has 28 commissioned officers. Another 10 will be added during 2006 and 2007.

Beginning July 1, Sahuarita will be dispatched by the County. The change to county dispatch will mean a change from UHF to 800 MHz county radios. Good coverage is expected within the jurisdiction from the Elephant Head and Keystone sites. The UHF channels and equipment will be kept as backup.

The department runs 6 shifts per week. Three overlapping shifts per day: 06:00 – 16:00, 14:00 – 24:00, and 20:00 – 08:00. The busiest radio hours are 17:00 – 19:00.

Sahuarita provides officer to serve on the DEA task force where they use DEA radios for communications.

The city expends significant policing time dealing with construction site theft and related reports. (A 17% adder for theft is reflected in the building costs.)



2. Functional

The department provides School Resource Officer (SRO) services to the Sahuarita school district. The district area is much larger than City jurisdiction or radio coverage stretching south slightly into Santa Cruz County. SROs rely on cell phones. Area population growth is both east and west.

The I19 corridor is a primary trafficking route. SPD needs to be able to directly communicate with the Federal agencies, particularly Border Patrol and DEA.

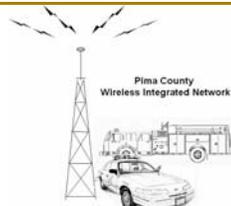
Radio coverage throughout the entire large school district is not possible today. In-building school coverage is poor. Schools rely on telephone only for emergency communications. Sahuarita high school is a large campus with 1200 students and planning a campus expansion doubling the capacity within the next 3 years.

3. Technical

Sahuarita currently operates conventional radio on 2 UHF channels. Coverage is adequate for within the Sahuarita political boundary.

4. Interoperability

TABLE 2.1.14A shows the existing direct interoperability capabilities with other agencies for the department.



B. Positive Attributes of Current Environment

1. Operational

The City is planning communications improvement projects worth about \$1M in 3 phases.

- Switch to County dispatch and 800MHz radios.
- 24 mobile data units connected to the county Spillman CAD through Alltel service.
- Wireless access to records systems

Sahuarita is planning a public/private broadband wireless network using mesh technology and covering all incorporated 30 square miles. Rollout is planned in 2007. Law enforcement will have private access on the network.

2. Functional

Wireless capabilities are increasing.

3. Technical

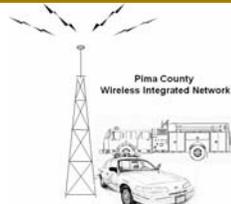
Currently plan to maintain UHF system for backup purposes.

C. Desired Attributes of Current and Future Environment

1. Operational

The department needs communications with Border Patrol and FBI over radio instead of cell phones.

Differences in radio band and protocol hamper communications with other local law enforcement, fire, and medical transport. Better direct radio to radio communications, preferably in the same radio band using one radio is the goal.



2. Functional

Officers have in-vehicle report writing capabilities now. The addition of wireless uploads of completed field reports is the next step. Officers also need mapping in the car and in dispatch, and the ability to download photos.

Some means of direct radio communications with the federal agencies operating in the VHF band is needed.

3. Technical

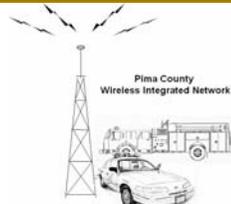
Technology, such as portable surveillance cameras, that could serve as a theft deterrent is desirable. Deployable wireless security cameras for setting up stakeouts where needed and viewing video from cars.

4. Interoperability Matrix

TABLE 2.1.14B shows future direct interoperability requirements with other agencies for both the department. The department requires direct interoperability with the Sheriff's office, Green Valley Fire, and Rural Metro for medical and medical transport.

5. Attributes Matrix

Please refer to TABLE 2.1.14C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Sahuarita Police  
File Name: Sahuarita Police 030306 Interview Record Final.doc  
Date of Interview: March 3, 2006  
Location of Interview: PCSD Administration Building  
Persons Interviewed: Don Lafreniere, Sergeant (acting Chief)  
CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Roscoe Mitchell, CTA Communications Specialist

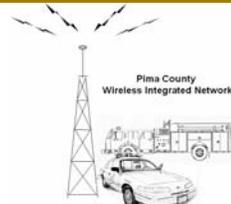
The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. Sahuarita Police operates south of Tucson in a 30 square mile area straddling I19. The area is known for its pecan farms. The department has been in operation for 8 ½ years.
2. Dispatch services are currently contracted with South Tucson. Beginning July 1, Sahuarita will be dispatched by the County. The department has 28 commissioned officers. Another 10 will be added during 2006 and 2007.
3. The department provides SRO services to the Sahuarita school district, an area much larger the City jurisdiction stretching down into Santa Cruz County. Area growth is both east and west.
4. The department runs 6 shifts per week. Three overlapping shifts per day: 06:00 – 16:00, 14:00 – 24:00, and 20:00 – 08:00. The busiest radio hours are 17:00 – 19:00.

Present Situation

1. Sahuarita currently operates radio on 2 UHF channels. Coverage is adequate.



2. The change to county dispatch will mean a change from UHF to 800 MHz county radios. Good coverage is expected within the jurisdiction from the Elephant Head and Keystone sites. They plan to keep the UHF channels and equipment as backup.
3. Sahuarita provides people on the DEA task force where they use DEA radios for communications.
4. The interoperability agencies are the Sheriff's office, Green Valley Fire, and Rural Metro for medical and medical transport.
5. The City is planning communications improvement projects worth about \$1M in 3 phases.
  - Switch to County dispatch and 800MHz radios.
  - 24 mobile data units connected to the county Spillman CAD through Alltel service.
  - Wireless access to records systems
6. They plan to maintain its UHF system for backup purposes.
7. Sahuarita is planning a public/private broadband wireless network using mesh technology and covering all incorporated 30 square miles. Rollout is planned in 2007. Law enforcement will have private access on the network.

Present Problems

1. Need to be able to directly communicate with the Federal agencies, particularly Border Patrol and DEA. The I19 corridor is a primary trafficking route.
2. Radio coverage throughout the entire large school district is not possible today. In-building school coverage is poor. Schools rely on telephone only for emergency communications. Sahuarita high school is a large campus with 1200 students and planning a campus expansion doubling the capacity within the next 3 years.
3. The city wastes significant policing time dealing with construction site theft and related reports. (A 17% adder for theft is reflected in the building costs.)

Future Requirements

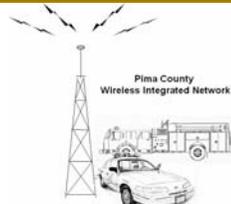
1. Wireless access to fixed security cameras from the car.

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CTA Communications, Inc.

2

Lynchburg, VA



2. Deployable wireless security cameras for setting up stakeouts where needed and viewing video from cars.
3. Better direct radio to radio communications with other local law enforcement, fire, and medical transport, preferably in the same radio band using one radio.
4. Mobile data: The addition of RF upload of field reports (have in-vehicle report writing now), mapping in the car and in dispatch downloading photos.
5. Direct radio communications with the VHF federal agencies.
6. Communications over radio instead of cell phones with Border Patrol and FBI.

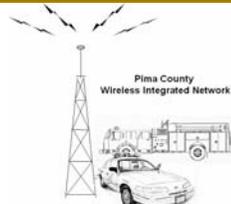
The draft of this record was sent to Captain Paul Wilson on April 4, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:

Captain Paul Wilson, PCSO  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** Sahuarita Police Department

**Contact Name:** Don Lafreniere

**Position:** Administrative Sergeant

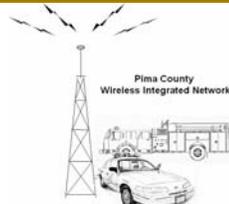
**Phone:** (520) 648-7746

**Email:** dlafriniere@ci.sahuarita.az.us

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	
Mobiles	30	4	4	4		
Portables	36	7	4	4		
Control Stations	1	1	1	1		
Paging units						
Other Devices						

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

All radios in UHF

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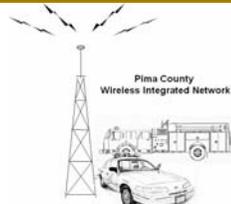
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c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles	23	Yes
Jail Transport		
Special Ops	5	Yes
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars		
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:



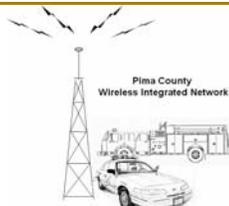

Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
1661 S. 6 <sup>th</sup> Avenue, Tucson	1	Dispatch

**Clarifications:**

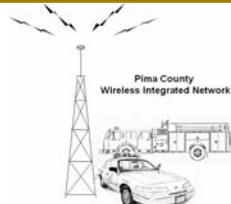


**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Radio Coverage						X
Dispatcher Responsiveness						X

- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**


Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.	Fax: (434) 239-9221
P.O. Box 4579	Phone: (434) 239-9200
Lynchburg, VA 24502-0579	<a href="mailto:PCWIN@ctacommunications.com">PCWIN@ctacommunications.com</a>

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Sahuarita Police Department

Contact Name: Don Lafreniere

Position: Administrative Sergeant

Phone: (520) 648-7746  
dlafeniere@ci.sahuarita.az.us

Email:

INSTRUCTIONS: Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

#### I: CURRENT SITUATION

Mobile data equipment do you currently have none.

Age: \_\_\_\_ Condition: \_\_\_\_ Adequate: \_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: n/a Name of CAD system: \_\_\_\_

Access to Records Management: \_\_\_\_ Name of RMS system: \_\_\_\_

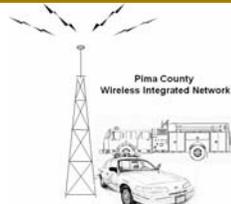
Records functions available: \_\_\_\_

Field Reporting: \_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_

Email: \_\_\_\_ Outlook or web-based? \_\_\_\_

Text Messaging: Car to car: \_\_\_\_ Car to dispatch: \_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_ State: \_\_\_\_ National : \_\_\_\_



Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

Need: Mobile Data \_\_\_\_\_

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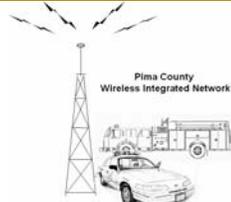
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**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles		23	33-63	63-93	93-123
Wireless Handhelds (PDA's)					
AVL equipped					
Digital Pagers					
Tone Voice Pagers					
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	n/a
Query (license checks, vehicle registrations, wanted persons, property checks)	
Car-to-car or car-to-dispatch message	
Status updates	





#### 4. Computer Systems Checklist – Law Enforcement Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Law Enforcement Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Law Enforcement Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. The NFPA 1221 provisions have been adopted by the Commission on Accreditation for Law Enforcement Agencies (CALEA) for CAD systems. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

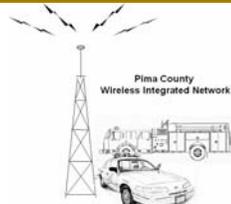
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

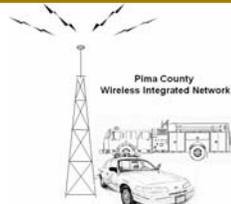


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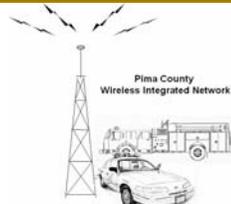
March 14, 2006

**Law Enforcement Department Checklist**

- 1) Department Name Sahuarita Police Department
- 2) Contact Name Don Lafreniere
- 3) Contact Telephone Number 520-648-7746
- 4) Primary Response Area \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 24 5 Year Growth 36
- 6) Number of Uniform vehicles  
Current 16 5 Year Growth 25
- 7) Number of Detective and radio equipped administrative vehicles  
Current 4 5 Year Growth 6
- 8) Number and description of specialized vehicles (such as SWAT, Command, Crime Scene, etc.)  
Description Crime Scene  
Current 0 5 Year Growth 1  
Description \_\_\_\_\_  
Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_



- Description \_\_\_\_\_
- Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_
- 9) Number of stations or precincts
- Current 1 5 Year Growth 1
- 10) Number of response zones or beats
- Current 1 5 Year Growth 3
- 11) Number of dispatched calls per year
- Current 3700 5 Year Growth 4,300
- 12) Number of traffic stops per year
- Current 1000 5 Year Growth 1400
- 13) Number of on-view or officer initiated calls per year
- Current 400 5 Year Growth 400
- 14) Number of Other calls requiring a unit (education, assist motorist, standby, etc.)
- Current 2 5 Year Growth 4
- 15) Number of calls (included above) that are out of your zone.
- Current 100 5 Year Growth 100
- 16) Number of calls (included above) that are out of Pima County.
- Current 0 5 Year Growth 0
- 17) Number of calls (included above ) that are out of Arizona.



Current 0 5 Year Growth 0

18) Number of arrests per year (other than traffic citations)

Current 805 5 Year Growth 1175

19) Number of ACIC/NCIC requests

Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_

21) Number of case report numbers issued per year.

Current 2000 5 Year Growth 920

22) Number of Mobile Data terminals

Current 0 5 Year Growth 41

23) Number of station computers or others that would log-on to the network

Current 0 5 Year Growth 10

24) Number of personnel that would require an individual log-on password

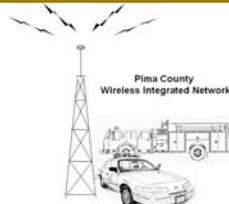
Current 28 5 Year Growth 22

25) Highest typical number of officers than are on duty.

Current 8 5 Year Growth 12

**Provisions of NFPA 1221 and CALEA**

**Annex D Computer-Aided Dispatching (CAD) Systems**



**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

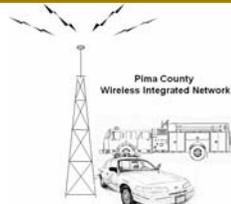
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

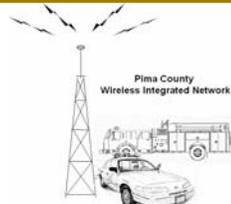
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

**D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



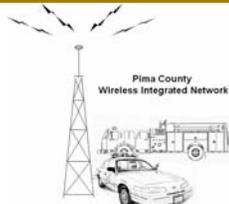
Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA  
22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331,  
Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

Sahuarita Police Department provided CTA with the following documentation items:

- Wish list of needs for new system
- Law Enforcement Frequency Bands
- Sahuarita 2006 Demographics

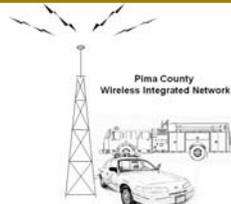


TABLE 2.1.14A Existing Interoperability

Agency Types	Agency Types	Agency Types
Sahuarita PD	Sahuarita PD	Sahuarita PD
Ajo/Gibson Vol. FD		Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD		Customs and Border Protection
Avra Valley Fire District		Drug Enforcement Administration
Corona de Tucson Fire District		Emergency Man. & Homeland Security
Drexel Heights Fire District	Marana PD	Federal Bureau of Investigation
Elephant Head Vol. FD	Oro Valley PD	Immigration and Customs Enforcement
Golder Ranch Fire District	Pascua Yaqui PD	National Park Service
Green Valley Fire District	Pima College Dept. of Public Safety	Bureau of Land Management
Helmet Peak Fire District	Pima County OEM & Homeland Security	U.S. Fish & Wildlife
Mt. Lemmon Fire District	Pima County Sheriff's Dept.	U.S. Forest Service
Northwest Fire District	Pima County Sheriff's Dept. - Ajo	U.S. Marshals Service
Pascua Pueblo FD	Sahuarita PD	Arizona Dept. of Public Safety
Picture Rocks Fire District	South Tucson PD	Arizona Game and Fish
Rincon Valley Fire District	Tohono O'odham Tribal Police	
Rural Metro Fire/Southwest Ambulance	Tucson Airport Authority PD	
South Tucson FD	Tucson PD	
Three Points FD	University of Arizona Police	
Tohono O' odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		

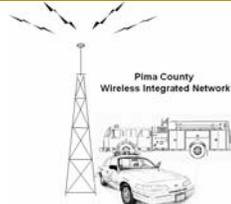
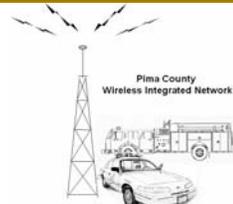


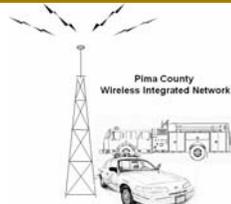
TABLE 2.1.14B Future Interoperability

Fire Agencies		Police and Emergency Services Agencies		Federal Agencies	
Agency Types	Agency Types	Agency Types	Agency Types	Agency Types	Agency Types
Sahuarita PD				Sahuarita PD	
Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives	
Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection	
Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration	
Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security	
Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation	
Elephant Head Vol. FD		Pima County Sheriff's Dept.	X	Immigration and Customs Enforcement	
Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service	
Green Valley Fire District		Sahuarita PD		Bureau of Land Management	
Helmet Peak Fire District		South Tucson PD	X	U.S. Fish & Wildlife	
Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service	
Northwest Fire District		Tucson Airport Authority		U.S. Marshals Service	
Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety	X
Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish	
Rincon Valley Fire District					
Rural Metro Southwest Ambulance					
South Tucson FD					
Three Points FD					
Tohono O'odham FD					
Tucson Airport Authority FD					
Tucson FD					
Ajo Ambulance					
Why Fire District					



**TABLE 2.1.14C**  
**Sahuarita Police Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	0.0	
2	Improved Voice Radio Coverage – Central County	5.0	
3	Improved Voice Radio Coverage – Western County	3.0	
4	In-building Coverage	5.0	
5	Minimize Local Interference	5.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	3.0	
7	On-scene Fire Channels	0.0	
8	Monitored Firegrounds	0.0	
9	Emergency Alerting	3.0	
10	Workgroup Oriented Operation	2.0	
11	Voice Security	5.0	
12	Operational Boundary Transparency	3.0	
13	One System Serves All Agencies	5.0	
14	Interoperability through Dispatch	5.0	
15	Interoperability with Adjacent Counties	2.0	
16	Interoperability with State Agencies	3.0	
17	Interoperability with Federal Agencies	4.0	
18	Person Location	3.0	
19	System Control	3.0	
20	Recorded Operations	5.0	
21	Simplified User Operations	5.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	0.0	
23	Dispatch Capacity	0.0	
24	Dispatch Coverage	0.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	5.0	
26	Cross CAD Interconnection	4.0	
27	Mobile Data Criticality	5.0	
28	Vehicle Location	3.0	
29	EMS Telemetry	0.0	
30	High-Speed Broadband Service	3.0	
31	Mobile Applications	5.0	
32	Advanced Mobile Applications	5.0	
33	Access County Information	5.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	3.0	
35	Fire Station Alerting	0.0	
36	Paging over Cellular	3.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	5.0	
38	Owner-Controlled Backbone	3.0	
39	Microwave Connectivity	5.0	
40	Microwave Additional Capacity	2.0	
41	Regional Connectivity	2.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	5.0	
47	Centralized Maintenance	5.0	



**TABLE 2.1.14C**  
**Sahuarita Police Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	2.0	
49	Commonality of Equipment	5.0	
50	Multiple Sources	3.0	
51	Phased Implementation	3.0	
52	Tiered Subscriber Cost	3.0	
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



### 2.1.15 South Tucson Fire Department

#### A. Current Environment

##### 1. Operational

The South Tucson Fire Department is located at 1601 S 6TH Ave Tucson, AZ 85713-2803. This department chose not to participate in the User Assessment phase of the project and information has not been provided to CTA.

##### 2. Functional

None.

##### 3. Technical

None.

##### 4. Interoperability

See TABLE 2.1.15A

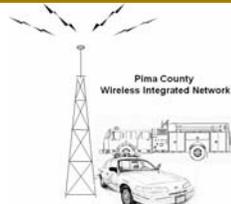
#### B. Positive Attributes of Current Environment

##### 1. Operational

None.

##### 2. Functional

None.



3. Technical

None.

C. Desired Attributes of Current and Future Environment

1. Operational

None.

2. Functional

None.

3. Technical

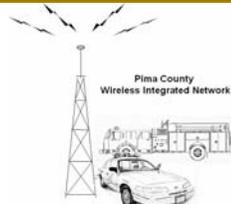
None.

4. Interoperability Matrix

See TABLE 2.1.15B.

5. Attributes Matrix

Please refer to TABLE 2.1.15C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Rural Metro/Southwest Ambulance  
South Tucson Fire Department  
Corona de Tucson Fire Department  
Elephant Head Fire Department

**File Name:** - 030106 County Fire Department Final 1  
Interview Record.doc

**Date of Interview:** - March 01, 2006

**Location of Interview:** - Pima County Sheriff Department

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

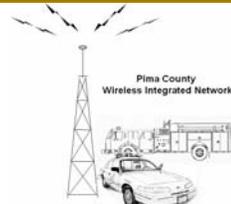
The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Rural Metro/Southwest Ambulance is responsible for 124 square miles and covers a majority of Pima County. Rural Metro/Southwest is located at 3759 North Commerce Drive, Tucson, in a 20,000 square foot building. The fleet maintenance operations reside at this location.
2. The Elephant Head Fire Department is staffed with volunteer firefighters.
3. Corona de Tucson Fire Department is responsible for approximately 30 square miles.

**Present Situation**

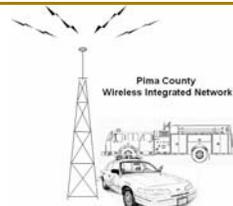
1. Elephant Head personnel currently have pagers and portables equipped with Motorola quick call. There are 30 firefighters on staff. The fire trucks are stationed at the firefighters homes. During an emergency fire call, 3-4 units will respond. Ambulances do not transport patients. The department has 7-8 apparatus.



2. The Elephant Head Fire Department's primary radio transmitter site is located at Elephant Head Peak.
3. The Corona de Tucson Fire Department is currently upgrading one tower and building at their stations. The tower is a 120 foot self supporting tower located at 99 Thistle Avenue.
4. The Corona de Tucson Fire Department is dispatched through tone alerts to pagers and radios. Operations are 24 hours per day staffed with 5 people during day and 3 people during the night. The department has 8 trucks and 1 ambulance. The ambulance does not transport.
5. Corona de Tucson Fire Department utilizes two frequencies; both are used in simplex or talk around mode.
6. Rural Metro/ Southwest Ambulance currently have 150 vehicles, and 40 dispatchers that work two (2) 12 hour shifts with 8-10 to 10 dispatchers staffed per shift. There are plans to add 10 dispatchers over the next 2 years. They also utilize a helicopter service (Copter Line) that operates from St. Mary's Hospital.
7. Samuel Well and Graham area ambulances are dispatched at Rural Metro. They have 13 fire stations and 8 ambulance sites. Northwest Fire and Golder Ranch are dispatched from Tucson Fire.
8. Rural Metro / Southwest Ambulance radios are mobiles: TK730, TK830, TK2170, TK2180, TK790, and TK890; portables 272GE, 273GE, TK280, and TK380. Consoles for dispatch are Centracom Gold Elite. CAD is GEAC, text based CAD, and NFIR (national fire record management system).
9. Rural Metro has a 60 foot self supporting tower with 1 UHF yagi, 3 VHF vertical, 3 VHF yagi for Rural Metro Elephant Head repeater, South Tucson repeater, and Green Valley. Repeater at 32 North Stone is VHF 153.150 Simplex, 159.090 TX, 153.815 RX medical dispatch only, and 155.75 after dispatch use. Mt. Lemmon is backup for Southwest Tucson and prime for Pinal County.

**Present Problems**

1. Elephant Head Fire Department would like better radio coverage.



2. Corona de Tucson Fire Department has coverage problems down Sahuarita highway and can not talk to Med line on highway 10.

**Future Requirements**

1. All departments would like to have access to CAD records, mobile mapping, building mapping, and HazMat.
2. Rural Metro / Southwest Ambulance would like to have mobile data capabilities in the future.

**Additional Comments**

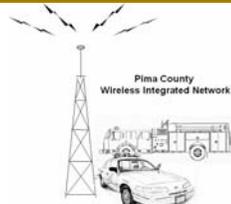
1. Survey forms were provided by the organizations at each of the sites.

The draft of this record was sent to Captain Paul Wilson on March 31, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:  
Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** City of South Tucson Fire Department

**Contact Name:** Larry Anderson

**Position:** Chief

**Phone:** 520-622-3309

**Email:** landerson@southtucson.org

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	
<b>Mobiles</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Portables</b>	<b>14</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>2</b>	
<b>Control Stations</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Paging units</b>	<b>20</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>8</b>	
<b>Other Devices</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

13 portables with 800mhz, 1 UHF

4 mobile with 800mhz, 4 uhf

1 control with 800mhz

20 arch pagers

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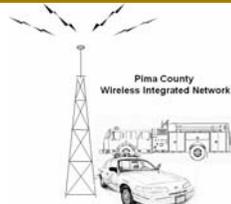
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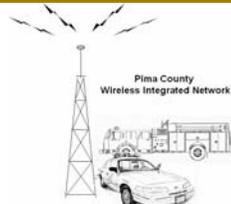


c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles		
Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars		
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

**Clarifications:**

Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
1601 S. 6 <sup>th</sup> ave.	1	Station 800mhz

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

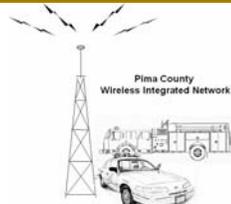
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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**


Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

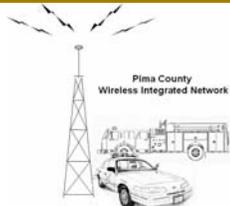
If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



3. Mobile Data Survey

None.



#### 4. Computer Systems Checklist – Fire & EMS Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Fire and EMS Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Fire and EMS Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

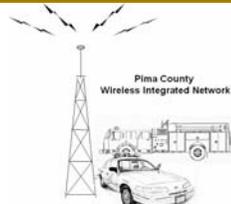
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

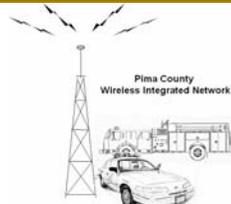


Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

**Fire and EMS Department Checklist**

- 1) Department Name South Tucson Fire Departmen
- 2) Contact Name Larry Anderson
- 3) Contact Telephone Number 520-622-3309
- 4) Primary Response Area City of South Tucson  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 17 5 Year Growth 0
- 6) Number of Fire Trucks and/or Engines  
Current 3 5 Year Growth 0
- 7) Number of Rescue and/or EMS response vehicles  
Current 2 5 Year Growth 0
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
Description Aerial  
Current Ladder 141 5 Year Growth 0  
Description \_\_\_\_\_  
Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

Description \_\_\_\_\_

Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_

9) Number of Fire or EMS stations

Current 1 5 Year Growth 0

10) Number of Fire and/or Response Zones

Current 1 5 Year Growth 0

11) Number of Fire runs per year

Current 2000 5 Year Growth 0

12) Number of EMS responses per year

Current 1700 5 Year Growth 0

13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.)

Current 300 5 Year Growth 0

14) Number of calls (included above) that are out of your District/Jurisdiction.

Current 0 5 Year Growth 0

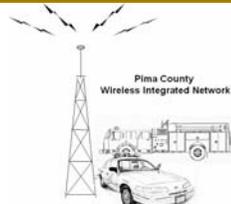
15) Number of calls (included above) that are out of Pima County.

Current 0 5 Year Growth 0

16) Number of calls (included above ) that are out of Arizona.

Current 0 5 Year Growth 0

17) Number of HAZMAT pre-plans



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

Current 4 5 Year Growth 0

18) Number of structure and location pre-plans

Current 300 5 Year Growth 10%

19) Number of Move-up Plans

Current 0 5 Year Growth 0

20) Number of fire hydrants

Current 117 5 Year Growth 4

21) Number of Mobile Data terminals

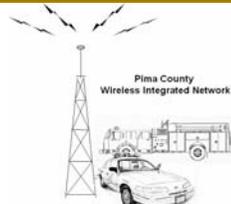
Current 4 5 Year Growth 2

22) Number of Station Computers or others that would log-on to the network

Current 3 5 Year Growth 2

23) Number of personnel that would require an individual log-on password

Current 6 5 Year Growth 0



**Provisions of NFPA 1221**  
**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

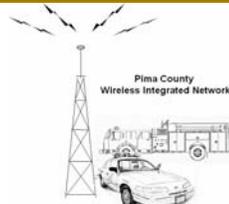
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

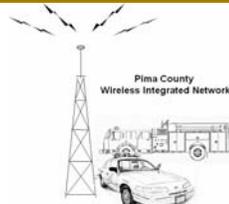
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



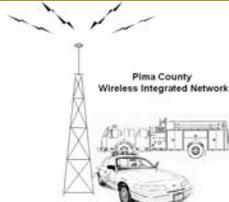
**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA  
22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331,  
Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided
  - Fire Rescue Frequency Bands

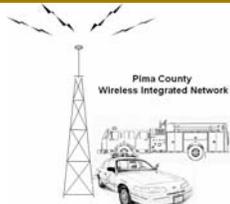


TABLE 2.1.15A Existing Interoperability

Agency Types	Agency Types	Agency Types
South Tucson FD	South Tucson FD	South Tucson FD
Ajo/Gibson Vol. FD		Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD		Customs and Border Protection
Avra Valley Fire District		Drug Enforcement Administration
Corona de Tucson Fire District		Emergency Man. & Homeland Security
Drexel Heights Fire District	Marana PD	Federal Bureau of Investigation
Elephant Head Vol. FD	Oro Valley PD	Immigration and Customs Enforcement
Golder Ranch Fire District	Pascua Yaqui PD	National Park Service
Green Valley Fire District	Pima College Dept. of Public Safety	Bureau of Land Management
Helmet Peak Fire District	Pima County OEM & Homeland Security	U.S. Fish & Wildlife
Mt. Lemmon Fire District	X Pima County Sheriff's Dept.	U.S. Forest Service
Northwest Fire District	Pima County Sheriff's Dept. - Ajo	U.S. Marshals Service
Pascua Pueblo FD	Sahuarita PD	Arizona Dept. of Public Safety
Picture Rocks Fire District	South Tucson PD	Arizona Game and Fish
Rincon Valley Fire District	Tohono O'odham Tribal Police	
X Rural Metro Fire/Southwest Ambulance	Tucson Airport Authority PD	
South Tucson FD	Tucson PD	
Three Points FD	University of Arizona Police	
Tohono O' odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		

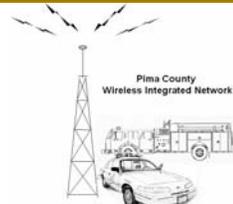
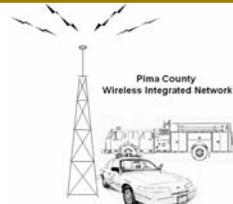


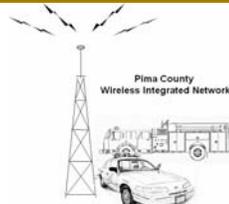
TABLE 2.1.15B Future Interoperability

Agency Types	Agency Types	Agency Types
South Tucson FD	South Tucson FD	South Tucson FD
Ajo/Gibson Vol. FD		Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD		Customs and Border Protection
Avra Valley Fire District		Drug Enforcement Administration
Corona de Tucson Fire District		Emergency Man. & Homeland Security
Drexel Heights Fire District		Federal Bureau of Investigation
Elephant Head Vol. FD		Immigration and Customs Enforcement
Golder Ranch Fire District		National Park Service
Green Valley Fire District		Bureau of Land Management
Helmet Peak Fire District		U.S. Fish & Wildlife
Mt. Lemmon Fire District		U.S. Forest Service
Northwest Fire District		U.S. Marshals Service
Pascua Pueblo FD		X Arizona Dept. of Public Safety
Picture Rocks Fire District		Arizona Game and Fish
Rincon Valley Fire District		
X Rural Metro Southwest Ambulance		
South Tucson FD		
Three Points FD		
Tohono O'odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		
	Marana PD	
	Oro Valley PD	
	Pascua Yaqui PD	
	Pima College Dept. of Public Safety	
	Pima County OEM & Homeland Security	
	X Pima County Sheriff's Dept.	
	Pima County Sheriff's Dept. - Ajo	
	Sahuarita PD	
	South Tucson PD	
	Tohono O'odham Tribal Police	
	Tucson Airport Authority	
	Tucson PD	
	University of Arizona Police	



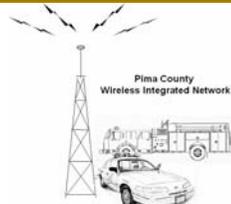
**TABLE 2.1.15C**  
**South Tucson Fire Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	1.0	
2	Improved Voice Radio Coverage – Central County	4.0	
3	Improved Voice Radio Coverage – Western County	1.0	
4	In-building Coverage	2.0	
5	Minimize Local Interference	2.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	3.0	
7	On-scene Fire Channels	4.0	
8	Monitored Firegrounds	4.0	
9	Emergency Alerting	4.0	
10	Workgroup Oriented Operation	3.0	
11	Voice Security	2.0	
12	Operational Boundary Transparency	2.0	
13	One System Serves All Agencies	4.0	
14	Interoperability through Dispatch	3.0	
15	Interoperability with Adjacent Counties	3.0	
16	Interoperability with State Agencies	3.0	
17	Interoperability with Federal Agencies	3.0	
18	Person Location	3.0	
19	System Control	3.0	
20	Recorded Operations	3.0	
21	Simplified User Operations	3.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	2.0	
23	Dispatch Capacity	2.0	
24	Dispatch Coverage	2.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	4.0	
26	Cross CAD Interconnection	4.0	
27	Mobile Data Criticality	4.0	
28	Vehicle Location	3.0	
29	EMS Telemetry	3.0	
30	High-Speed Broadband Service	3.0	
31	Mobile Applications	3.0	
32	Advanced Mobile Applications	3.0	
33	Access County Information	3.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	2.0	
35	Fire Station Alerting	2.0	
36	Paging over Cellular	3.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	3.0	
38	Owner-Controlled Backbone	2.0	
39	Microwave Connectivity	3.0	
40	Microwave Additional Capacity	3.0	
41	Regional Connectivity	3.0	
<b>Reliability and Availability</b>			
42	Survivability	3.0	
43	Reliability/Failure Hierarchy	3.0	
44	Single Points of Failure	3.0	
45	Power Backup	3.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	3.0	
47	Centralized Maintenance	3.0	



**TABLE 2.1.15C**  
**South Tucson Fire Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	3.0	
49	Commonality of Equipment	3.0	
50	Multiple Sources	3.0	
51	Phased Implementation	3.0	
52	Tiered Subscriber Cost	3.0	
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.1.16 South Tucson Police Department

### A. Current Environment

#### 1. Operational

The City of South Tucson is a square-mile community just south of downtown Tucson and is completely surrounded by the City of Tucson. The South Tucson Police Department provides law enforcement services for the local community population of about 5,500.

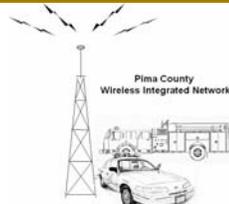
#### 2. Functional

The South Tucson Police Communications Center currently aligns their communications operations with the Tucson PD Communications Center.

The dispatch center has a staff of six. There are 6 Dispatchers employed in the department and they organized to staff three shifts: 0700 to 1700 – 1 dispatcher, 1700 to 0300 – 2 dispatchers, 0300 to 0700 – 1 dispatcher. On Fridays an additional dispatcher supports operations from 0900 – 1900.

The Communications Center supports STPD, and Sahuarita PD law enforcement dispatch. Non-law enforcement dispatch is transferred to Rural Metro or Greensboro. Primarily this is for medical response (ambulance).

There are service area coverage issues especially when accessing the system with portables in buildings and in the south end of the community. South Tucson Police Department has a lot of dead spots in Sahuarita.



There are in-building coverage issues with portables and interference from Stratford PD. The interference appears to be jail operations traffic - 50 to 60 miles away.

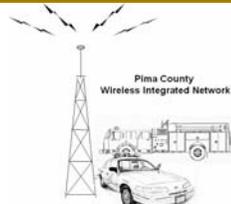
3. Technical

There are two MOTROLA Starlite console positions in the center. Quest provides the 911 switch – Plant VESTA - Magic.

There are four 911 trunks, two administration lines, two PBX extensions, three ring-downs for Sheriff PSAP, Rural Metro, TPD, and TFD (city meds). The positions have one-button transfer capability for the Sheriff PSAP, Rural Metro, Green Valley Fire, TPD, and TFD. Because South Tucson is so geographically small, wireless calls are answered by Tucson and then transferred to the SPD Communications Center.

The SPD has remote DS1 access to the TPD CAD/ Records Management System. Common records are shared with the PCSD, Pima College and TPD. SPD can access local, ACIC, NCIC, and ACJIS records. The main radio TAC channel is – 156.210. The transmitter is located at 1601 S. 6<sup>th</sup> Avenue, Tucson.

The South Tucson Police Department police channel experiences voice quality problems especially if the Sahuarita area. This can be attributed to spotty signal levels and coverage dead spots in the area. Officers in the field are experiencing interference from Stratford PD on the TAC channel. The interference appears to be jail operations traffic from operations 50 to 60 miles away from South Tucson.



4. Interoperability

TABLE 2.1.12A shows the existing direct interoperability capabilities with other agencies for the department. The STPD does have radio access to Rural Metro on a simplex channel (154.175), and on the Sahuarita PD channel – 465.450. They do not communicate on the same frequencies as TPD. During an emergency the department switches to the Gateway frequency. This is a Tri-band Repeater on Tucson MTN that operates in the VHF, UHF, and 800 MHz bands. There is no defined process for going to the Gateway repeater and the procedures can be complex.

B. Positive Attributes of Current Environment

1. Operational

The center is staffed eighteen hours a day, six days a week and typically there is only one dispatcher on duty.

2. Functional

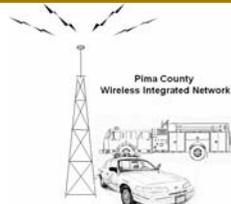
Current system can handle daily traffic as well as special events such as Norteno Festival.

3. Technical

C. Desired Attributes of Current and Future Environment

1. Operational

Channel assignments to support match the TPD system and to improve wide-area coverage performance. The ability to have Mobile data technology and Mobile Terminal Computers in vehicles, and access records from vehicles in the field is needed.



Information needed from the Records Management System includes: ACIC, Cop-Link, mug shots, text, warrants, criminal history, utility status, internet-access, ACJIS, and CJIS.

2. Functional

The ability to roam throughout South Tucson without having to manually change channels and the ability to have radio access to the TPD are important features.

3. Technical

Wireless Bluetooth technology should be accessible by all officers and include Automatic Vehicle Location (AVL) technology and GPS radio location technology.

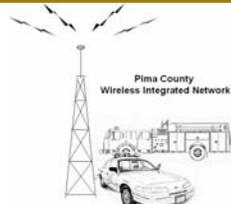
The STPD should be included in the TPD build-out of the 10BaseT, Wi-Max system.

4. Interoperability Matrix

TABLE 2.1.12B shows the future direct interoperability requirements with other agencies for the department.

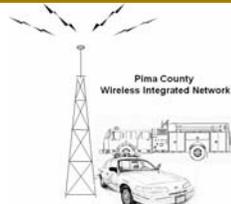
Interoperability availability is an issue and South Tucson is completely surrounded by the City of Tucson. There is no direct radio communications between the STPD and the TPD, except for the Tucson Police Department helicopter.

The system upgrade for the STPD should incorporate a similar technology platform as the TPD system to facilitate radio interoperability requirements. It is desirable to have common frequencies or talk-groups available to simplify radio protocol procedures and monitoring to facilitate interoperability with other agencies.



5. Attributes Matrix

Please refer to TABLE 2.1.16C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization Representative: Dale King Lead Dispatcher  
Phone: 520 622 3307  
Email: dking@southtucson.org

File Name: South Tucson Police Interview Record Final.doc

Date of Interview: 1:30 PM, February 23, 2006

Location of Interview: Sheriff Administration Building  
1750 East Building, Address

Persons Interviewed: Dale King, Lead Dispatcher

CTA Interviewers: Harry Rote, CTA Senior Systems Engineer  
Roscoe Mitchell Technical Specialist

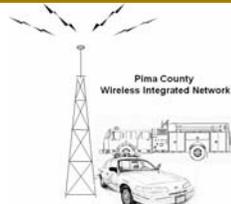
The following points were conveyed to CTA during this interview:

Organization and Responsibilities

The City of South Tucson is a square-mile community just south of downtown Tucson and is completely surrounded by the City of Tucson. The South Tucson Police Department provides law enforcement services for the local community population of about 5,500.

Present Situation

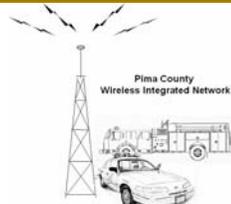
1. South Tucson Police Communications Center currently aligns their communications operations with the Tucson PD Communications Center.



2. There are 6 Dispatchers employed in the department. Shifts include:  
0700 to 1700 – 1 dispatcher  
1700 to 0300 – 2 dispatchers  
0300 to 0700 – 1 dispatcher  
  
On Fridays an additional dispatcher supports operations from 0900 – 1900.
3. The Communications Center supports STPD, and Sahuarita PD law enforcement dispatch. Non-law enforcement dispatch is transferred to Rural Metro or Greensboro. Primarily this is for medical response (ambulance).
4. The consoles are MOTROLA Starlite. They are non- PC type. Quest provides the 911 switch – Plant VESTA - Magic. There are four 911 trunks, two administration lines, two PBX extensions, three ring-downs for Sheriff PSAP, Rural Metro, TPD, and TFD (city meds). The positions have one-button transfer capability for the Sheriff PSAP, Rural Metro, Green Valley Fire, TPD, and TFD.
5. The SPD has remote DS1 access to the TPD Records Management System. Common records are shared with the PCSD, Pima College and TPD. SPD can access local, ACIC, NCIC, and ACJIS records.
6. STPD radio traffic records will be forwarded to CTA Communications for traffic loading analysis.
7. The main TAC channel is – 156.210 (need configuration). The transmitter is located at 1601 S. 6<sup>th</sup> Avenue, Tucson. Other channels in the STPD radios include Rural Metro – 154.175, a simplex (car to car) channel. The STPD has access to the Sahuarita PD channel – 465.450.

Present Problems

1. STPD needs a common data link to access TPD records concerning fugitives and other help wanted records.
2. STPD does not communicate on the same frequencies as TPD. This is a problem during emergencies. During an emergency the department switches to the Gateway frequency (Tri-band Repeater on Tucson MTN – VHF, UHF, and 800 MHz). There is no defined process for going to the Gateway repeater.



3. South Tucson Police Department has a lot of dead spots in Sahuarita. There is in-building coverage issues with portables and interference from Stratford PD. The interference appears to be jail operations traffic - 50 to 60 miles away.

Future Requirements

None

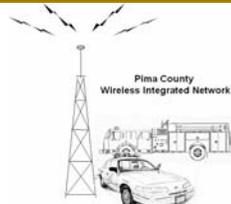
The draft of this record was sent to Dale King on March 23, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:

Dale King  
1601 S. 6<sup>th</sup> Avenue  
Tucson AZ 85713

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## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: **South Tucson Pd**

Contact Name: **Dale King**

Position: **Lead Dispatcher**

Phone: **(520)622-3307**

Email: **dking@southtucson.org**

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



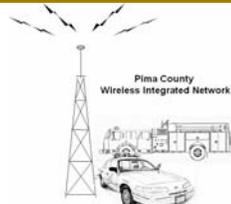
Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	Shift 4
<b>Mobiles</b>	20					
<b>Portables</b>	34					
<b>Control Stations</b>	2					
<b>Paging units</b>						
<b>Other Devices</b>						

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles	16	Yes
Jail Transport	1	Yes
Special Ops	7	Yes
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars		
Other (Please Describe)	1	Yes

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:



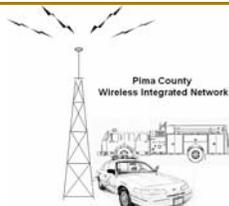

Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
1601 S 6 <sup>th</sup> Ave Tucson Az 85713	2	Dispatch Center

**Clarifications:**







Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

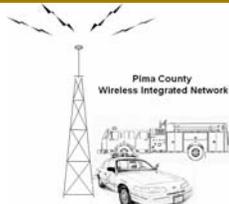

Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.                      Fax: (434) 239-9221  
P.O. Box 4579                                      Phone: (434) 239-9200  
Lynchburg, VA 24502-0579                      [PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: South Tucson Pd

Contact Name: Dale King

Position: Lead Dispatcher

Phone: (520)622-3307

Email: dking@southtucson.org

INSTRUCTIONS: Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

#### I: CURRENT SITUATION

Mobile data equipment do you currently have (NONE)Presently Plan in place for nine units

Age: \_\_\_\_\_ Condition: \_\_\_\_\_ Adequate: \_\_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: Y Name of CAD system: PRC

Access to Records Management: Y Name of RMS system: Y

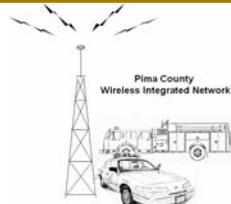
Records functions available: N

Field Reporting: would be nice Automatic Vehicle Location (AVL): \_\_\_\_\_

Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging: Car to car: would be nice Car to dispatch: would be nice

Query (Person, Vehicle, Property, etc) Local: a must State: a must National : a must



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

none presently

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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

N/A

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**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): N/A

Commercial Service (Verizon, etc) : N/A

Wi-Fi : N/A

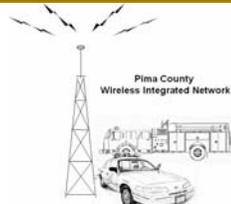
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	None				
Wireless Handhelds (PDA's)	NA				
AVL equipped	NA				
Digital Pagers	NA				
Tone Voice Pagers	NA				
Other Devices _____	NA				

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour <del>or</del> per day <del>50</del>
CAD Dispatch	50
Query (license checks, vehicle registrations, wanted persons, property checks)	100
Car-to-car or car-to-dispatch message	30
Status updates	20
Emails	20





#### 4. Computer Systems Checklist – Law Enforcement Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Law Enforcement Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Law Enforcement Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. The NFPA 1221 provisions have been adopted by the Commission on Accreditation for Law Enforcement Agencies (CALEA) for CAD systems. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

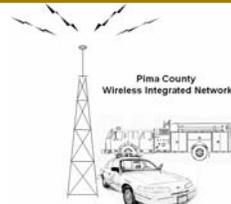
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

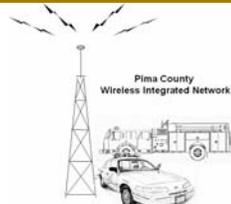


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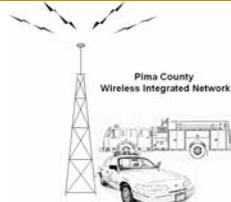
March 14, 2006

**Law Enforcement Department Checklist**

- 1) Department Name South Tucson Pd
- 2) Contact Name Dale King
- 3) Contact Telephone Number (520)622-3307
- 4) Primary Response Area City of South Tucson  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 34 5 Year Growth 45
- 6) Number of Uniform vehicles  
Current 16 5 Year Growth 25
- 7) Number of Detective and radio equipped administrative vehicles  
Current 4 5 Year Growth 6
- 8) Number and description of specialized vehicles (such as SWAT, Command, Crime Scene, etc.)  
Description Special Ops/Swat  
Current 8 5 Year Growth 16  
Description \_\_\_\_\_  
Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_



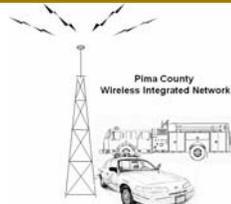
- Description \_\_\_\_\_
- Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_
- 9) Number of stations or precincts
- Current 1 5 Year Growth 0
- 10) Number of response zones or beats
- Current 4 5 Year Growth \_\_\_\_\_
- 11) Number of dispatched calls per year
- Current 7500 5 Year Growth 8000
- 12) Number of traffic stops per year
- Current 3600 5 Year Growth 4000
- 13) Number of on-view or officer initiated calls per year
- Current 2000 5 Year Growth 2500
- 14) Number of Other calls requiring a unit (education, assist motorist, standby, etc.)
- Current 1500 5 Year Growth 2000
- 15) Number of calls (included above) that are out of your zone.
- Current 100 5 Year Growth 150
- 16) Number of calls (included above) that are out of Pima County.
- Current none 5 Year Growth \_\_\_\_\_
- 17) Number of calls (included above ) that are out of Arizona.



- Current none 5 Year Growth \_\_\_\_\_
- 18) Number of arrests per year (other than traffic citations)
- Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_
- 19) Number of ACIC/NCIC requests
- Current 60,000 5 Year Growth 70,000
- 21) Number of case report numbers issued per year.
- Current 77000 5 Year Growth \_\_\_\_\_
- 22) Number of Mobile Data terminals
- Current none 5 Year Growth \_\_\_\_\_
- 23) Number of station computers or others that would log-on to the network
- Current 8 5 Year Growth 12
- 24) Number of personnel that would require an individual log-on password
- Current 25 5 Year Growth 35
- 25) Highest typical number of officers than are on duty.
- Current 10 5 Year Growth 20

**Provisions of NFPA 1221 and CALEA**

**Annex D Computer-Aided Dispatching (CAD) Systems**



**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

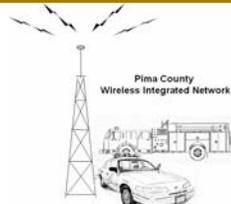
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

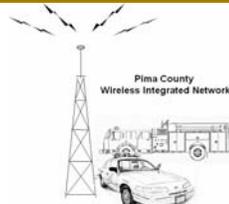
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



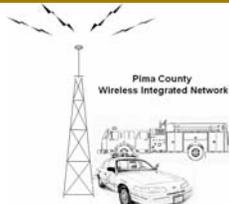
Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA  
22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331,  
Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

- Law Enforcement Frequency bands
- Trunk and Line Overview

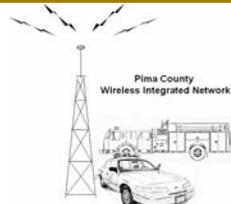


TABLE 2.1.16A Existing Interoperability

Agency Types	Agency Types	Agency Types
South Tucson PD	South Tucson PD	South Tucson PD
Ajo/Gibson Vol. FD		Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD		Customs and Border Protection
Avra Valley Fire District		Drug Enforcement Administration
Corona de Tucson Fire District	Marana PD	Emergency Man. & Homeland Security
Drexel Heights Fire District	Oro Valley PD	Federal Bureau of Investigation
Elephant Head Vol. FD	Pascua Yaqui PD	Immigration and Customs Enforcement
Golder Ranch Fire District	Pima College Dept. of Public Safety	National Park Service
Green Valley Fire District	Pima County OEM & Homeland Security	Bureau of Land Management
Helmet Peak Fire District	X Pima County Sheriff's Dept.	U.S. Fish & Wildlife
Mt. Lemmon Fire District	Pima County Sheriff's Dept. - Ajo	U.S. Forest Service
Northwest Fire District	Sahuarita PD	U.S. Marshals Service
Pascua Pueblo FD	South Tucson PD	Arizona Dept. of Public Safety
Picture Rocks Fire District	Tohono O'odham Tribal Police	Arizona Game and Fish
Rincon Valley Fire District	Tucson Airport Authority PD	
Rural Metro Fire/Southwest Ambulance	X Tucson PD	
South Tucson FD	University of Arizona Police	
Three Points FD		
Tohono O'odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		

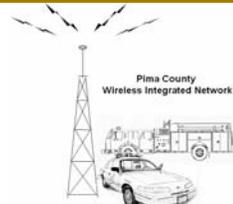


TABLE 2.1.16B Future Interoperability

Agency Types	South Tucson PD	Agency Types	South Tucson PD	Agency Types	South Tucson PD
Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives	
Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection	X
Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration	
Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security	
Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation	
Elephant Head Vol. FD		Pima County Sheriff's Dept.	X	Immigration and Customs Enforcement	
Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service	
Green Valley Fire District		Sahuarita PD	X	Bureau of Land Management	
Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife	
Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service	
Northwest Fire District		Tucson Airport Authority		U.S. Marshals Service	
Pascua Pueblo FD		Tucson PD	X	Arizona Dept. of Public Safety	X
Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish	
Rincon Valley Fire District					
Rural Metro Southwest Ambulance					
South Tucson FD					
Three Points FD					
Tohono O'odham FD					
Tucson Airport Authority FD					
Tucson FD					
Ajo Ambulance					
Why Fire District					

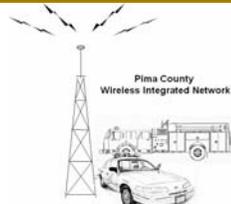
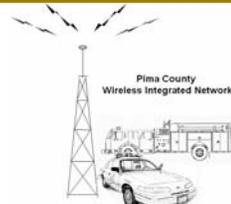


TABLE 2.1.16C  
 South Tucson Police Department

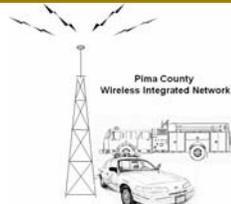
DESIGNATOR NO.	ATTRIBUTE	South Tucson Police Dept.	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	4.0	
2	Improved Voice Radio Coverage – Central County	4.0	
3	Improved Voice Radio Coverage – Western County	4.0	
4	In-building Coverage	4.0	
5	Minimize Local Interference	3.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	3.0	
7	On-scene Fire Channels	3.0	
8	Monitored Firegrounds	3.0	
9	Emergency Alerting	3.0	
10	Workgroup Oriented Operation	2.0	
11	Voice Security	4.0	
12	Operational Boundary Transparency	3.0	
13	One System Serves All Agencies	4.0	
14	Interoperability through Dispatch	4.0	
15	Interoperability with Adjacent Counties	3.0	
16	Interoperability with State Agencies	2.0	
17	Interoperability with Federal Agencies	2.0	
18	Person Location	3.0	
19	System Control	3.0	
20	Recorded Operations	3.0	
21	Simplified User Operations	4.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	2.0	
23	Dispatch Capacity	2.0	
24	Dispatch Coverage	2.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	4.0	
26	Cross CAD Interconnection	4.0	
27	Mobile Data Criticality	4.0	
28	Vehicle Location	3.0	
29	EMS Telemetry	4.0	
30	High-Speed Broadband Service	4.0	
31	Mobile Applications	3.0	
32	Advanced Mobile Applications	3.0	
33	Access County Information	1.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	3.0	
35	Fire Station Alerting	3.0	
36	Paging over Cellular	3.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	4.0	
38	Owner-Controlled Backbone	3.0	
39	Microwave Connectivity	3.0	
40	Microwave Additional Capacity	3.0	
41	Regional Connectivity	2.0	
<b>Reliability and Availability</b>			
42	Survivability	4.0	
43	Reliability/Failure Hierarchy	4.0	
44	Single Points of Failure	3.0	
45	Power Backup	4.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	3.0	
47	Centralized Maintenance	3.0	
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	4.0	



**TABLE 2.1.16C**  
**South Tucson Police Department**

DESIGNATOR NO.	ATTRIBUTE	South Tucson Police Dept.	COMMENTS
49	Commonality of Equipment	3.0	
50	Multiple Sources	3.0	
51	Phased Implementation	3.0	
52	Tiered Subscriber Cost	3.0	

**Ranking Scale:**  
 0 - Attribute is NOT IMPORTANT to the user.  
 1 - Attribute is MINIMALLY IMPORTANT to the user.  
 2 - Attribute is NICE TO HAVE, could enhance operations.  
 3 - Attribute is USEFUL, will promote more efficient day to day operation.  
 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property.  
 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.



## 2.1.17 Tohono O'odham Fire Department

### A. Current Environment

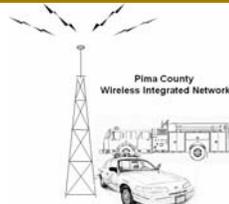
#### 1. Operational

The Tohono O'odham Nation is comprised of four non-contiguous geographic segments. Land area includes more than 2.8 million acres at an elevation of 2,674 feet. The lands of the Nation are located within the Sonoran Desert in south central Arizona. The largest community, Sells, functions as the Nation's capital. Of the four lands bases, the largest contains more than 2.7 million acres. Boundaries begin south of Casa Grande and encompass parts of Pinal and Pima Counties before continuing south into Mexico. San Xavier is the second largest land base, and contains 71,095 acres just south of the City of Tucson. The smaller parcels include the 10,409-acre San Lucy District, located near the city of Gila Bend, and the 20-acre Florence Village, which is located near the city of Florence.

The Fire Department falls under the management of the Fire Chief who reports to the Director of Public Safety Department within the Tribal Council structure. There are 3 brush trucks, 2 water tenders, 1 special operations vehicle, 6 vehicular repeaters, and 4 other vehicles in the department.

#### 2. Functional

The TON Fire and major EMS operations are primarily dispatched from the Sells EMS (Indian Health Services, USPHS). The Fire Department pays a fee to Drexel Heights for dispatch services of the San Xavier Sub-station (Station 231). Fire Stations are equipped with desk top Control Stations or Base Stations. The Stations are located in Sells, North Komelik, and San Xzvier.



There are approximately 1,500 residents in Sells and there are multiple villages (22) interspersed around the Nation.

3. Technical

Primary radio communications is conducted on the VHF frequency bands. Kitt Peak and Quijotoa are the repeater sites. Simplex or ground channels are used for TAC purposes. The operational channels are summarized below:

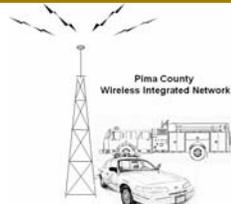
	Channel
Kitt Peak Channel 1	1
Kitt Peak Channel 2	2
Quijotoa Channel 5	5
Quijotoa Channel 6	6
Drexel Heights FD 1-5	Repeater & Simplex

The N

Radios	Inventory	Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	28	14	14	14	14
Portables	30	8	8	8	
Control Stations	4	4	4	4	

4. Interoperability

TABLE 2.1.17A shows the existing direct interoperability capabilities with other agencies for the fire department. The TON Fire and Rescue have access to EMS and Border Patrol (VHF), TON Police and PCSD (800 MHz), UHF (DHFD and EMS). Three Points Fire Department, Drexel Heights, Rural Metro and can support operations on the eastern part of the Tribal Land. In the West and North of Sells, Ajo EMS and IHS provide ambulance services.



B. Positive Attributes of Current Environment

1. Operational

Fire trucks are equipped with VHF and UHF equipment to facilitate internal and external communications with other agencies.

The fire department uses Fire Programs Record Management System for incident reports but does not have CAD capabilities at this time. Anticipated implementation of a CAD system and RMS is one year.

2. Functional

The Fire Department is responsible for a large geographical area and there is limited staff and resources to do. The northern border of the nation extends beyond Pima County nearly to southern Phoenix. The southern border of the nation extends into Mexico.

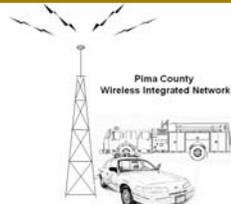
3. Technical

A microwave link exists from Sells dispatch to the Kitt Peak repeater site and it belongs to the utility company which may cause coordination difficulties to attain approvals to utilize it.

C. Desired Attributes of Current and Future Environment

1. Operational

The Fire Department should have increased staff to support Fire and EMS operations and a standardized radio protocol training program should be implemented with the new system upgrade. Need standardized radio protocol.



2. Functional

The new radio system should expand radio coverage to support radio communications throughout the Tohono O'odham service area for all TON public safety agencies and improve interoperability with outside agencies.

3. Technical

The Fire Department should migrate to a wide-area 800 MHz radio system that will have sufficient channel capacity and wide-area coverage to reliability to cover their service area.

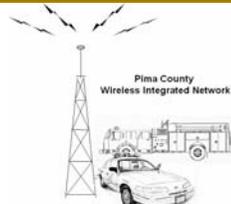
The radio system should incorporate new CAD and Records technology to support mobile data, automatic vehicle location (AVL) and GPs capabilities to the apparatus in the field and provide a centralized database management.

The Fire Department needs to have more control in regards to establishing and maintaining radio sites.

4. Interoperability Matrix

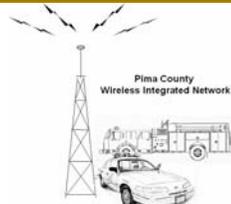
TABLE 2.1.17B shows the future direct interoperability requirements with other agencies for the department.

It is desirable to have common frequencies or talk-groups available to simplify radio protocol procedures and monitoring to facilitate interoperability with other agencies. The TON Fire and Rescue will need access to the TON Police Department EMS, Border Patrol, PCSD, DHFD, Three Points Fire Department, Drexel Heights fire Department, Rural Metro, Ajo EMS and HIS ambulance services.



5. Attributes

Please refer to TABLE 2.1.17C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Tohono O' odham Fire

File Name: Tohono O'odham Fire Interview Final Report.doc

Date of Interview: March 3, 2006

Location of Interview: Tohono O' odham Police Headquarters  
Sells, Arizona 85634

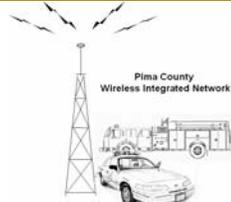
Persons Interviewed: Guy Acuna, Assistant Fire Chief  
Craig Encinas, Fire Chief  
Chuck Kmet, Emergency Management Administrator  
Ben Standifer, Chief Information Officer  
Paul Wilson, Captain – Pima County Sheriff's Office

CTA Interviewers: Harry Rote, Senior Systems Engineer  
Gary Mountcastle, Senior Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. The Tohono O'odham Nation is comprised of four non-contiguous geographic segments. Land area includes more than 2.8 million acres at an elevation of 2,674 feet. The lands of the Nation are located within the Sonoran Desert in south central Arizona. The largest community, Sells, functions as the Nation's capital. Of the four lands bases, the largest contains more than 2.7 million acres. Boundaries begin south of Casa Grande and encompass parts of Pinal and Pima Counties before continuing south into Mexico. San Xavier is the second largest land base, and contains 71,095 acres just south of the City of Tucson. The smaller parcels include the 10,409-acre San Lucy District, located near the city of Gila Bend, and the 20-acre Florence Village, which is located near the city of Florence.
2. The Fire Department falls under the management of the Fire Chief who reports to the Director of Public Safety Department within the Tribal Council structure.



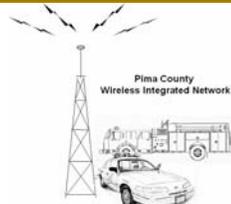
Present Situation

1. Fire and major EMS operations are primarily dispatched from the Sells EMS (Indian Health Services, USPHS). The Fire Department pays a fee to Drexel Heights for dispatch services of the San Xavier Sub-station (Station 231). Fire Stations are equipped with desk top Control Stations or Base Stations: Sells, North Komelik, and San Xzvier. There are approximately 1,500 residents in Sells and there are multiple villages (22) interspersed around the Nation.
2. Primary operations is conducted on the VHF frequency bands. Kit Peak and Quijotoa are the repeater sites. Simplex or ground channels are used for TAC purposes. Fire and Rescue have access to EMS and Border Patrol (VHF), TON Police and PCSD (800 MHz), UHF (DHFD and EMS).

	Channel		
Kitt Peak Channel 1	1		
Kitt Peak Channel 2	2		
Quijotoa Channel 5	5		
Quijotoa Channel 6	6		
Drexel Heights FD 1-5	Repeater & Simplex		

3. Three Points and Drexel Heights can support operations on the eastern part of the Tribal Land. To the West and North of Sells, Ajo EMS and IHS provide ambulance services.
4. Fire trucks have VHF and UHF equipment. There are 3 brush trucks, 2 water tenders, 1 special operations vehicle, 6 vehicular repeaters, and 4 other vehicles in the department.
5. Non-Fixed Equipment

Radios	Inventory	Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	28	14	14	14	14
Portables	30	8	8	8	
Control Stations	4	4	4	4	



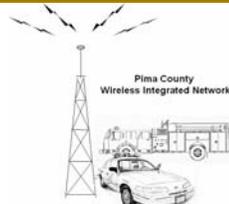
Note: The frequency band allocations for the mobiles listed are: 14 VHF, 10 UHF, and 4 800 MHz.

Radio quantities are expected to increase by 30 to 50 percent over the next fifteen years.

6. The fire department uses Fire Programs Record Management System for incident reports but does not have CAD capabilities at this time. Anticipated implementation of a CAD system and RMS is one year.
7. The Fire Department participates in mutual aid operations with Three Points, Drexel Heights, and Rural Metro Fire and EMS.

Present Problems

1. The Fire Department is responsible for a large geographical area and there is limited staff and resources to do. The northern border of the nation extends beyond Pima County nearly to southern Phoenix. The southern border of the nation extends into Mexico. A larger staff is needed and additional Stations to improve emergency responses.
2. Fire responses often require police escort.
3. A microwave link exists from Sells to Kitt Peak but it belongs to the utility company which may cause coordination difficulties to attain approvals to utilize it.
4. 911 calls are first received in Tucson (Drexel Heights) and then they contact TON dispatch for incidents that occur in San Xavier. E-911 system is in place for the main portion of the reservation. This system is maintained by TOPD.
5. Radio coverage is not adequate and needs to be improved over the TON.
6. There is a lack of standardized radio protocol.
7. The Fire Department has no ownership or control over the sites or facilities.
8. Current CAD and Records software is not reliable or non-existent and there is no AVL, MDT or centralized database management.



Future Requirements

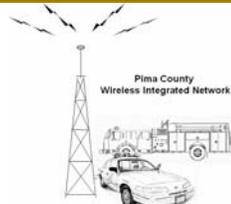
1. The Fire Department should migrate to a wide-area 800 MHz radio system that will have sufficient channel capacity and wide-area coverage to reliability to cover their service area.
2. The system should provide improved communications capabilities for all TO public safety agencies and improve interoperability with outside agencies.
3. AVL, Mobile Data, upgraded CAD technology and centralized Database Management is needed.
4. In the near future the Fire Department will require a Mobile Data Network, 9 MTC's, and 4 wireless handhelds.

The draft of this record was sent to Captain Paul Wilson on April 3, 2006.

Corrected draft was returned to CTA Communications on April 12, 2006.

Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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2. Radio Usage Form

X

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** Tohono O'odham Nation Fire Department

**Contact Name:** Craig Encinas                      **Position:** Fire Chief

**Phone:** (520) 383-8276                      **Email:** craig.encinas@tonation-nsn.gov

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Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

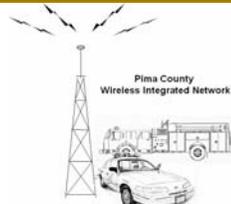
**I: RADIO UTILIZATION CURRENT SITUATION**

a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

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 Page 1 of 8



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	
Mobiles	28	14	14	14	14	
Portables	30	8	8	8		
Control Stations	4	4	4	4		
Paging units						
Other Devices						

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

Clarifications:

14 mobiles are vhf (primary use) 11 mobiles are uhf (primary use for San Xavier District and Medical Control for all areas), and 4 mobiles are 800 mhz (to communicate with TOPD).  
 14 portables are vhf, 8 are uhf and 8 are 800mhz

mobiles = vhf 14  
 uhf 11  
 800 4

Portables = vhf 14  
 uhf 8  
 800 8



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	3	y
Water Tender	2	y
Pumper/ Engine	4	y
Ladder Truck		
Ambulance		
Patrol Vehicles		
Jail Transport		
Special Ops	1	y
Vehicular Repeaters *	6	y
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars		
Other (Please Describe)	4	y

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

Other indicates chief officer and prevention vehicles

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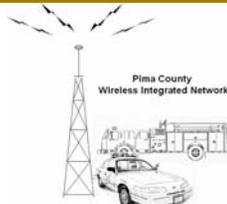
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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
North Komelik	1	Base Station
San Simon	1	Base Station
Sells	1	Base Station
San Xavier	1	Base Station

Clarifications:

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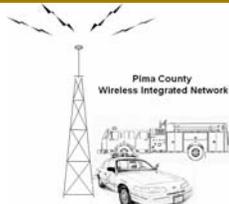
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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

e. Please list the talk-group or channel assignments for your radios.

Primary Talk groups or channel name	Other Talkgroups or channel name	Repeater or Simplex **	Surrounding city or county	Federal	Tribal
Kitt Peak	1	Repeated	Y	X	
Kitt Peak	2	Simplex	N	X	
Quijotoa	5	Repeated	N	X	
Quijotoa	6	Simplex	N	X	
DHFD	1-5	Both	N		

\* Designate the frequency band if known in the appropriate box.  
 \*\* A repeater channel is a channel that utilizes a tower; a simplex channel communicates radio to radio without the benefit of a tower repeater.

Clarifications:  
 Dispatching is provided for fee by the Drexel Heights Fire District for the Tohono O'odham Nation Fire Department in the San Xavier District. We interact with local units on all frequencies available to them. Dispatching is provided for the Tohono O'odham Nation Fire Department everywhere else by Sells EMS (Indian Health Service, USPHS).

Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

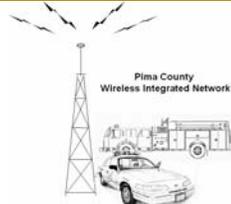
Radio Usage Information Survey  
 February 7, 2006

**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Lack of ownership, control						X
Inadequate coverage						X
No structured protocols						X

- 0 : No problem identified.
- 1 : Identified problem, currently not of concern. May become a concern in the future.
- 2 : Occasionally a problem, affects some operations but is generally worked around.
- 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
- 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.

N/A: Not applicable or not answered.

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

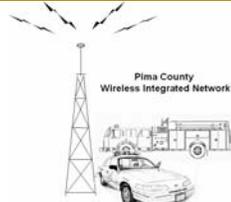
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**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	10%	20%	30%	50%
Portables	10%	20%	30%	50%
Control Stations	10%	20%	30%	50%
Paging units	35	10%	20%	30%
Other Devices				



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Thank you for your assistance.

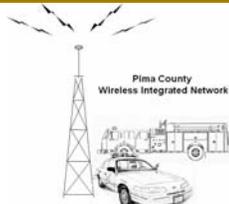
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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### 3. Mobile Data Survey

Pima County, Arizona Wireless Integrated Network (PCWIN)	Mobile Data Information Survey February 7, 2006
<b>CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY</b>	
Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.	
<b>Organization/Agency Name:</b> <u>Tohono O'odham Nation Fire Department</u>	
<b>Contact Name:</b> <u>Craig Encinas</u>	<b>Position:</b> <u>Fire Chief</u>
<b>Phone:</b> <u>(520) 383-83276</u>	<b>Email:</b> <u>craig.encinas@tonation-nsn.gov</u>
<b>INSTRUCTIONS:</b> Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete	
<b>I: CURRENT SITUATION</b>	
Mobile data equipment do you currently have <u>None</u>	
Age: _____ Condition: _____ Adequate: _____	
Mobile data functions that you currently have and use:	
Computer Aided Dispatch: <u>None</u> Name of CAD system: _____	
Access to Records Management: <u>Yes</u> Name of RMS system: <u>Fire Programs</u>	
Records functions available: <u>Yes</u>	
Field Reporting: <u>No</u> Automatic Vehicle Location (AVL): <u>No</u>	
Email: <u>No</u> Outlook or web-based? _____	
Text Messaging: Car to car: <u>No</u> Car to dispatch: <u>No</u>	
Query (Person, Vehicle, Property, etc) Local: <u>No</u> State: _____ National : _____	
	Page 1 of 4



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: N/A

Other software: N/A

Problems or concerns with your current capabilities:

Unreliability of current reporting software, inability to centralize data, record management, no  
AVL or CAD technology

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

Near term: AVL, MDT, and CAD technology, centralized database



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): 0

Commercial Service (Verizon, etc) : Alltel

Wi-Fi : N/A

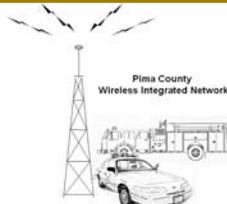
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	0	9	9	10%	20%
Wireless Handhelds (PDA's)	2	4	0	20%	30%
AVL equipped	0	14	15	10%	20%
Digital Pagers	15	34	34	10%	20%
Tone Voice Pagers	0	0	0	0	0
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day <sup>200</sup>
CAD Dispatch	3
Query (license checks, vehicle registrations, wanted persons, property checks)	
Car-to-car or car-to-dispatch message	10
Status updates	5



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Emails	
Field Report	.1
Other _____	
Other _____	
Other _____	

Any additional comments or questions you have regarding mobile data:

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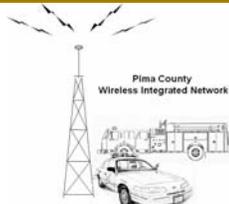
Please hand this survey in during your interview or return to:

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document 1



#### 4. Computer Systems Checklist – Law Enforcement Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Fire and EMS Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Fire and EMS Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

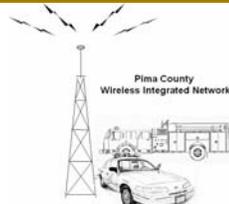
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

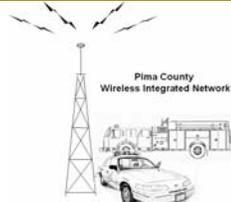


Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

**Fire and EMS Department Checklist**

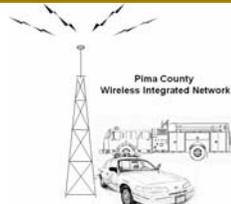
- 1) Department Name Tohono O'odham Nation Fire
- 2) Contact Name Charles Kmet / Craig Encinas
- 3) Contact Telephone Number 520-383-8276
- 4) Primary Response Area Tohono O'odham Nation  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 35 5 Year Growth 45-55
- 6) Number of Fire Trucks and/or Engines  
Current 8 5 Year Growth 12
- 7) Number of Rescue and/or EMS response vehicles  
Current 0 5 Year Growth 2
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
Description Command  
Current 1 5 Year Growth 1  
Description Aerial  
Current 0 5 Year Growth 1



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- Description \_\_\_\_\_
- Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_
- 9) Number of Fire or EMS stations
- Current 4 5 Year Growth 5
- 10) Number of Fire and/or Response Zones
- Current 1 5 Year Growth 1
- 11) Number of Fire runs per year
- Current 500 5 Year Growth 650
- 12) Number of EMS responses per year
- Current 1200 5 Year Growth 1600
- 13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.)
- Current 80 5 Year Growth 120
- 14) Number of calls (included above) that are out of your District/Jurisdiction.
- Current 35 5 Year Growth 60
- 15) Number of calls (included above) that are out of Pima County.
- Current 0 5 Year Growth 0
- 16) Number of calls (included above ) that are out of Arizona.
- Current 0 5 Year Growth 0
- 17) Number of HAZMAT pre-plans



Pima County, Arizona  
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Current 0 5 Year Growth 30

18) Number of structure and location pre-plans

Current 50 5 Year Growth 100

19) Number of Move-up Plans

Current 0 5 Year Growth 0

20) Number of fire hydrants

Current unk 5 Year Growth unk

21) Number of Mobile Data terminals

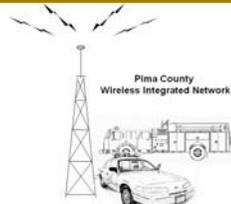
Current 0 5 Year Growth 12

22) Number of Station Computers or others that would log-on to the network

Current 0 5 Year Growth 7

23) Number of personnel that would require an individual log-on password

Current 5 5 Year Growth 12



**Provisions of NFPA 1221**  
**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

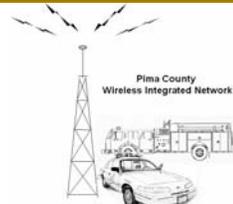
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

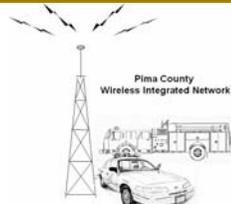
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



**Pima County, Arizona  
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**March 14, 2006**

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA  
22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331,  
Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided
  - Fire Rescue Frequency Bands

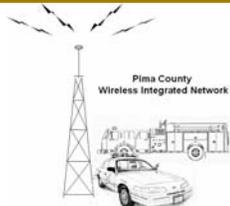


TABLE 2.1.17A Existing Interoperability

Fire Agencies		Police and Emergency Services Agencies		Federal Agencies		State	
Agency Types	Tohono O'odham FD	Agency Types	Tohono O'odham FD	Agency Types	Tohono O'odham FD		
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives		
	Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection		
	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration		
	Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security		
	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation		
	Elephant Head Vol. FD		Pima County Sheriff's Dept.		Immigration and Customs Enforcement		
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service		
	Green Valley Fire District		Sahuarita PD		Bureau of Land Management		
	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife		
	Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service		
	Northwest Fire District		Tucson Airport Authority PD		U.S. Marshals Service		
	Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety		
	Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish		
	Rincon Valley Fire District						
	Rural Metro Fire/Southwest Ambulance						
	South Tucson FD						
	Three Points FD						
	Tohono O'odham FD						
	Tucson Airport Authority FD						
	Tucson FD						
	Ajo Ambulance						
	Why Fire District						

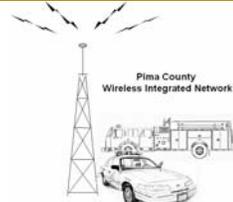


TABLE 2.1.17B Future Interoperability

Agency Types Tohono O'odham FD		Agency Types Tohono O'odham FD		Agency Types Tohono O'odham FD	
	Ajo/Gibson Vol. FD				Bureau of Alcohol, Tobacco, Firearms & Explosives
	Arivaca Vol. FD				Customs and Border Protection
	Avra Valley Fire District				Drug Enforcement Administration
	Corona de Tucson Fire District				Emergency Man. & Homeland Security
X	Drexel Heights Fire District		Marana PD		Federal Bureau of Investigation
	Elephant Head Vol. FD		Oro Valley PD		Immigration and Customs Enforcement
	Golder Ranch Fire District		Pascua Yaqui PD		National Park Service
	Green Valley Fire District		Pima College Dept. of Public Safety		Bureau of Land Management
	Helmet Peak Fire District		Pima County OEM & Homeland Security		U.S. Fish & Wildlife
	Mt. Lemmon Fire District		Pima County Sheriff's Dept.		U.S. Forest Service
	Northwest Fire District	X	Pima County Sheriff's Dept. - Ajo		U.S. Marshals Service
	Pascua Pueblo FD		Sahuarita PD		Arizona Dept. of Public Safety
	Picture Rocks Fire District		South Tucson PD		Arizona Game and Fish
	Rincon Valley Fire District		Tohono O'odham Tribal Police	X	
	Rural Metro Southwest Ambulance		Tucson Airport Authority		
	South Tucson FD		Tucson PD		
	Three Points FD		University of Arizona Police		
	Tohono O'odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
X	Why Fire District				

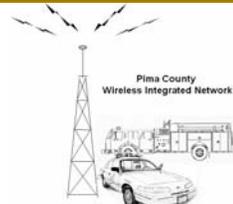
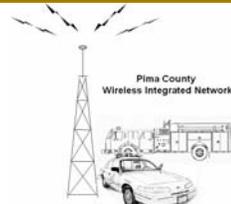


TABLE 2.1.17C  
 Tohono O'odham Fire Department

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	2.0	
2	Improved Voice Radio Coverage – Central County	4.0	
3	Improved Voice Radio Coverage – Western County	5.0	This needs to include the SW as part of border & the TON
4	In-building Coverage	4.0	
5	Minimize Local Interference	3.0	
<b>Voice Radio Operations</b>			
6	Increase d Channel Capacity	4.0	
7	On-scene Fire Channels	4.0	
8	Monitored Firegrounds	5.0	
9	Emergency Alerting	5.0	
10	Workgroup Oriented Operation	4.0	
11	Voice Security	3.0	
12	Operational Boundary Transparency	4.0	
13	One System Serves All Agencies	5.0	
14	Interoperability through Dispatch	5.0	
15	Interoperability with Adjacent Counties	4.0	
16	Interoperability with State Agencies	4.0	
17	Interoperability with Federal Agencies	4.0	
18	Person Location	3.0	
19	System Control	5.0	
20	Recorded Operations	5.0	
21	Simplified User Operations	3.0	
<b>Dispatch Operations</b>			
22	Increase d Dispatch Channel Capacity	4.0	
23	Dispatch Capacity	4.0	
24	Dispatch Coverage	4.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	0.0	
26	Cross CAD Interconnection	1.0	Concerns with information exchange
27	Mobile Data Criticality	4.0	
28	Vehicle Location	4.0	
29	EMS Telemetry	4.0	
30	High-Speed Broadband Service	3.0	
31	Mobile Applications	4.0	
32	Advanced Mobile Applications	3.0	
33	Access County Information	3.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	3.0	
35	Fire Station Alerting	4.0	
36	Paging over Cellular	3.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	4.0	
38	Owner-Controlled Backbone	4.0	
39	Microwave Connectivity	4.0	
40	Microwave Additional Capacity	3.0	
41	Regional Connectivity	3.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	4.0	
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	5.0	
47	Centralized Maintenance	2.0	
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	5.0	
49	Commonality of Equipment	3.0	P-25??
50	Multiple Sources	4.0	
51	Phased Implementation	4.0	
52	Tiered Subscriber Cost	4.0	Still need some indication of cost matrix
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.1.18 Tohono O'odham Tribal Police

### A. Current Environment

#### 1. Operational

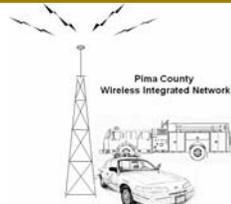
The Tohono O'odham Nation (TON) is comprised of four non-contiguous geographic segments. Land area includes more than 2.8 million acres at an elevation of 2,674 feet. The lands of the Nation are located within the Sonoran Desert in south central Arizona. The TON Police Department consists of the Police Chief and Assistant Police Chief. There are 5 lieutenants that report to them and they are in charge of the following:

- Investigations: 3 Sergeants and 11 Detectives
- Patrol: 8 Sergeants and 36 Officers
- Special Operations:
- Rangers: 30 Rangers
- Administrative: 1 Sergeant.

They are also responsible for law enforcement and operation of correction facilities. Currently there are five Corrections Sergeants, 27 Corrections Officers and One Corrections Administrator.

#### 2. Functional

There is a substation located approximately 40 miles to the west. Also a substation 47 NW in North Komelic village and one 60 miles E in Tucson. The juvenile detention facility uses a different type of voice encryption and is not normally on police voice traffic.



Currently in-building coverage in the casinos is poor. Portable coverage is poor or non-existent in the southwest, Alveraz Mountains, Santa Cruz Flats, Tat Momu MTN (northeast) Hikawan Valley, Copper City Hills, Florence, San Majuel, I19S, Pan Tak, Pima Mine, the Hotel and Casinos.

3. Technical

The radio system consists of a MOTOROLA 800 MHz SMARTNET conventional system equipped with 8 channels. The call Signs are WPEM281, and WPL955. The Mobiles are MTS 2000 and portables HT 1000. All channels can operate with encryption but dispatch is not equipped for encryption. The juvenile detention facility uses a different type of voice encryption and is not normally on police voice traffic.

There are 2.4 GHz Cisco access points at the stations available for mobile data applications. Several vehicles have video recording capability but there is no RF link to dispatch or to the Spillman CAD database system.

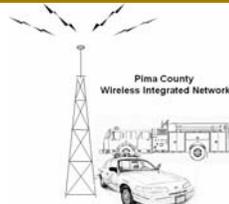
4. Interoperability

TABLE 2.1.18A shows the existing direct interoperability capabilities with other agencies for the department. The police department must interface with several other agencies such as ICE, FBI, Customs, Border Patrol, and U.S. Marshals. These other agencies supply radios to the officers for operations. Federal agencies are on VHF frequencies.

B. Positive Attributes of Current Environment

1. Operational

Currently interface with agencies such as ICE, FBI, Customs, Border Patrol, and U.S. Marshals.



2. Functional

The existing radio system covers a large expanse of land.

3. Technical

The MOTOROLA 800 MHz SMARTNET conventional system can be expanded.

C. Desired Attributes of Current and Future Environment

1. Operational

The radio system is limited in its ability to adequately support the geographical area of police operations that the police operate in. A consolidated TON fire and police dispatch center is needed, and interoperability with ACJIS, and CJIS is important.

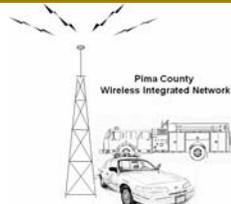
The ability to have Automatic Vehicle Location capabilities and GPS capabilities is very important.

2. Functional

The 800 MHz radio system should address in-building coverage issues and wide-area dead spots. The ability to utilize mobile data and tracking technology is needed.

3. Technical

The radio system must cover a large expanse of land and the 800 MHz system in place especially in the southwest, the Alveraz Mountains, the Santa Cruz Flats, the Tat Momu MTN in the northeast the Hikawan Valley, Copper City Hills, Florence, San Majuel, I19S, Pan Tak, Pima Mine, and the Hotel and Casinos.



Upgrade to a wide-area trunked simulcast network or networks that will have sufficient channel capacity and wide-area coverage to reliability to cover their service area.

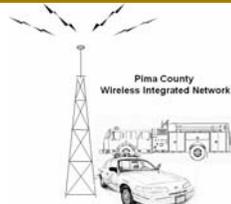
The radio system should incorporate new CAD and Records technology to support mobile data, automatic vehicle location (AVL) and GPs capabilities to the apparatus in the field and provide a centralized database management.

4. Interoperability Matrix

TABLE 2.1.18B shows the future interoperability requirements with other agencies for the department. It is desirable to have common frequencies or talk-groups available to simplify radio protocol procedures and monitoring to facilitate interoperability with other agencies. The TON Police Department needs interoperability with the Sheriff Department, Customs, Border Patrol, FBI, US Marshal, and ICE.

5. Attributes Matrix

Please refer to TABLE 2.1.8C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: - Tohono O' odham Police

File Name: - 030306TohonoOodhamPolice Final.doc

Date of Interview: - March 3, 2006

Location of Interview: - Tohono O' odham Police Headquarters  
Sells, Arizona 85634

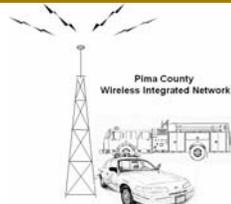
Persons Interviewed: - Joe Delgado, Assistant Police Chief  
Michael Ford, Police Lieutenant  
Edward Perez, Police Officer  
\*Ben Standifer, Chief Information Officer  
Paul Wilson, Captain – PCSO

CTA Interviewers: - Harry Rote, Sr. Systems Engineer  
Gary Mountcastle, Sr. Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. The Tohono O' odham Nation is comprised of four non-contiguous geographic segments. Land area includes more than 2.8 million acres at an elevation of 2,674 feet. The lands of the Nation are located within the Sonoran Desert in south central Arizona. The largest community, Sells, functions as the Nation's capital. Of the four lands bases, the largest contains more than 2.7 million acres. Boundaries begin south of Casa Gande and encompass parts of Pinal and Pima Counties before continuing south into Mexico. San Xavier is the second largest land base, and contains 71,095 acres just south of the City of Tucson. The smaller parcels include the 10,409-acre San Lucy District, located near the city of Gila Bend, and the 20-acre Florence Village, which is located near the city of Florence.

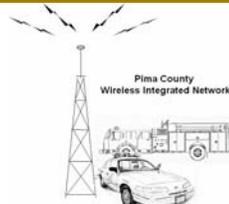


2. The TON Police Department consists of the Police Chief and Assistant Police Chief. There are 5 lieutenants that report to them and they are in charge of the following:
  - Investigations: 3 Sergeants and 11 Detectives
  - Patrol: 8 Sergeants and 36 Officers
  - Special Operations:
  - Rangers: 30 Rangers
  - Administrative: 1 Sergeant.

They are also responsible for law enforcement and operation of correction facilities. One Corrections Administrator, Five Corrections Sergeants, 27 Corrections Officers.

Present Situation

1. Currently there are 25 corrections officers and 75 in the police force. They hope to increase this number by 45 within 3 years. And 30 Rangers
2. There is a substation located approximately 40 miles to the west. Also a substation 47 NW in North Komelic village and one 60 miles E in Tucson.
3. The radio system consists of a MOTOROLA 800 MHz SMARTNET conventional system with 8 channels. Call Signs WPEM281, and WPL955. Mobiles are MTS 2000 and portables HT 1000. All channels can operate with encryption but dispatch is not equipped for encryption. Six 800 Mhz channels and Two Uhf channels ( in the 450 range). Channel Four in the 800 Mhz range is not currently being utilized. Channels 3 and 4 in the 800 Mhz and the two Uhf channels are not encryptable. For Portables we utilize the Motorola HT1000 and MTS2000 and for Mobiles we utilize the Motorola Maxtrac and MCS 2000.
4. The juvenile detention facility uses a different type of voice encryption and is not normally on police voice traffic.
5. The police department has to interface with several other agencies such as ICE, FBI, Customs, Border Patrol, and U.S. Marshals. These other agencies supply radios to the officers for operations with them. The other agencies provide their own radios to their Officers except that we provide two radios to CBP Officers in Sells.
6. There are 2.4 GHz Cisco access points at the stations and are connected with 2.4 GHz links.



7. The CAD is by Spillman.
8. Several vehicles have video recording capability but there is no RF link to dispatch. We only have about 4 vehicles capable of video recording (VHS).

Present Problems

1. Poor in-building coverage in the casinos.
2. Portable coverage is poor or non-existent in the southwest, Alveraz Mountains, Santa Cruz Flats, Tat Momu MTN (northeast) Hikawan Valley, Copper City Hills, Florence, San Majuel, I19S, Pan Tak, Pima Mine, the Hotel and Casinos.

Future Requirements

1. A consolidated TON fire and police dispatch center is needed, and interoperability with ACJIS, and CJIS is important.
2. Interested in AVL and mobile data capability.
3. Radio interoperability with Customs, Border Patrol, FBI, US Marshal, and ICE is needed.
4. Coverage inside casinos is important.
5. Encryption.

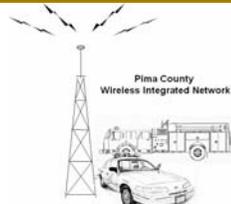
The draft of this record was sent to Captain Paul Wilson on March 29, 2006.

Corrected draft was returned to CTA Communications on April 20, 2006.

Captain Paul Wilson  
1750 E. Benson Highway  
Tucson, Arizona 85714

\*Ben Standifer, Chief Information Officer

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Planning\interview\Final\030306TohonoOodhamPolice Final.doc



## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Tohono O'odham Nation Police Department

Contact Name: Kevin Shonk

Position: Lieutenant

Phone: 520-349-2997

Email: kevin.shonk@tonation-nsn.gov

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.





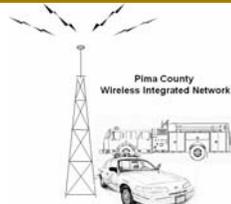
c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles	85	Yes
Jail Transport	4	Yes
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans	3	Yes
Buses	1	Yes (2Radios)
Cars	9	Yes
Other (Please Describe)	21	Yes

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

21 Other vehicles are SUV vehicles equipped for Patrol use.

Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
TOPD Main Station Sells, AZ	5	Daily Operations

**Clarifications:**

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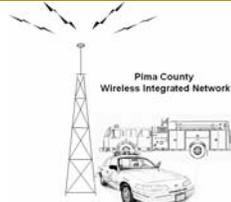


Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

e. Please list the talk-group or channel assignments for your radios.

Primary Talk groups or channel name	Other Talkgroups or channel name	Repeater or Simplex **	Surrounding city or county	Federal	Tribal
1	Kitt Peak Primary	Repeater	Pima	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Quijotoa Primary	Repeater	Pima / Pinal	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3	San Xavier	Repeater	Tucson / Pima	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4	San Lucy	Repeater	Gila Bend / Maricopa	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5	Kitt Peak Secondary	Repeater	Pima	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6	Quijotoa Secondary	Repeater	Pima / Pinal	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7	Kitt Peak Primary Car to Car	Simplex	Pima	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8	Quijotoa Primary Car to Car	Simplex	Pima / Pinal	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9	San Xavier Car to Car	Simplex	Tucson / Pima	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10	San Lucy Car to Car	Simplex	Gila Bend / Maricopa	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11	Kitt Peak Secondary Car to Car	Simplex	Pima	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12	Quijotoa Secondary Car to Car	Simplex	Pima / Pinal	<input type="checkbox"/>	<input checked="" type="checkbox"/>



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006


- \* Designate the frequency band if known in the appropriate box.
- \*\* A repeater channel is a channel that utilizes a tower; a simplex channel communicates radio to radio without the benefit of a tower repeater.

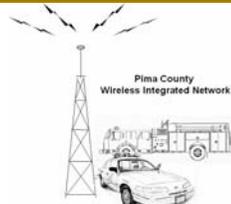
**Clarifications:**

Channel 4 (San Lucy) is currently not operational. This is a repeated channel, however, there is not repeater active at this time and the channel is not used except in the Gila Bend area. Our Dispatch center can not transmit or monitor this channel.


**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

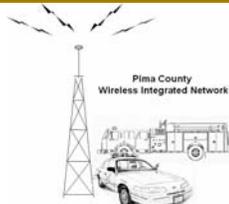
List Problem	0	1	2	3	4	5
Radio Coverage						X
Equipment Reliability				X		





require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
<b>Mobiles</b>	<b>25</b>	<b>45</b>	<b>60</b>	<b>80</b>
<b>Portables</b>	<b>25</b>	<b>45</b>	<b>60</b>	<b>80</b>
<b>Control Stations</b>				
<b>Paging units</b>				
<b>Other Devices</b>				



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

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Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** Tohono O'odham Nation Police Department

**Contact Name:** Kevin Shonk

**Position:** Lieutenant

**Phone:** 520-349-2997

**Email:** kevin.shonk@tonation-nsn.gov

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

#### I: CURRENT SITUATION

Mobile data equipment do you currently have None - Currently not utilizing mobile data.

Age: N/A Condition: N/A Adequate: N/A

Mobile data functions that you currently have and use:

Computer Aided Dispatch: N/A Name of CAD system: N/A

Access to Records Management: N/A Name of RMS system: N/A

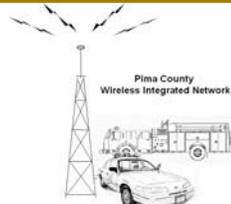
Records functions available: N/A

Field Reporting: N/A Automatic Vehicle Location (AVL): N/A

Email: N/A Outlook or web-based? N/A

Text Messaging: Car to car: N/A Car to dispatch: N/A

Query (Person, Vehicle, Property, etc) Local: N/A State: N/A National : N/A



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: N/A

Other software: N/A

Problems or concerns with your current capabilities:  
Currently have no mobile data access or equipment.

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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

Near Term - Need - Functions - CAD Dispatch, AVL

Long Term - Desire - Information sharing w/ county and federal agencies

Near Term - Need - Informations Sources - Records, databases, mug shots, other Spillman modules

Geographical Areas - Entire reservation

Equipment Needs - All new equipment as we have none.

Personal Safety - personnel locator

Other mobile data functions that may be deemed reasonable and necessary.

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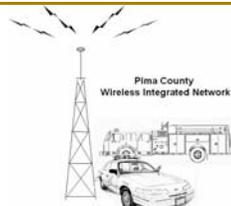
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**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): N/A

Commercial Service (Verizon, etc) : N/A

Wi-Fi : N/A

Other (Describe): N/A

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles			125	125	125
Wireless Handhelds (PDA's)			25	25	25
AVL equipped			125	125	125
Digital Pagers					
Tone Voice Pagers					
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	300 per day
Query (license checks, vehicle registrations, wanted persons, property checks)	400 per day
Car-to-car or car-to-dispatch message	500 per day
Status updates	750 per day



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

Emails	150 per day
Field Report	80 per day
Other _____	
Other _____	
Other _____	

Any additional comments or questions you have regarding mobile data:

\_\_\_\_\_

\_\_\_\_\_

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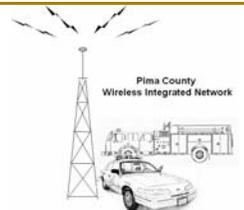
\_\_\_\_\_

Please hand this survey in during your interview or return to:

CTA Communications, Inc. Fax: (434) 239-9221  
 P.O. Box 4579 Phone: (434) 239-9200  
 Lynchburg, VA 24502-0579 [PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document2



#### 4. Computer Systems Checklist – Law Enforcement Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Law Enforcement Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Law Enforcement Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. The NFPA 1221 provisions have been adopted by the Commission on Accreditation for Law Enforcement Agencies (CALEA) for CAD systems. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

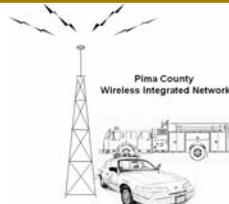
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

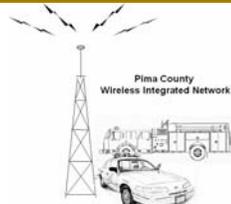
This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

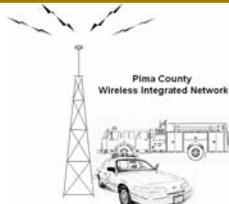


**Law Enforcement Department Checklist**

- 1) Department Name Tohono O'odham Nation Police Department
- 2) Contact Name Kevin Shonk, Lieutenant
- 3) Contact Telephone Number 520-349-2997
- 4) Primary Response Area Tohono O'odham Reservation  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 137 5 Year Growth 200
- 6) Number of Uniform vehicles  
Current 100 5 Year Growth 135
- 7) Number of Detective and radio equipped administrative vehicles  
Current 30 5 Year Growth 45
- 8) Number and description of specialized vehicles (such as SWAT, Command, Crime Scene, etc.)  
  
Description Mobile Command Center  
  
Current 1 5 Year Growth 2  
  
Description SWAT Deployment Vehicle  
  
Current 1 5 Year Growth 2



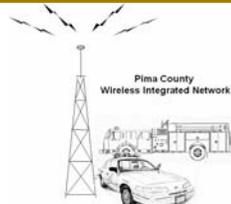
- Description Patrol Motor Cycles
- Current 5 5 Year Growth 10
- 9) Number of stations or precincts
- Current 4 5 Year Growth 4
- 10) Number of response zones or beats
- Current 4 5 Year Growth 4
- 11) Number of dispatched calls per year
- Current 16,000 5 Year Growth 25,000
- 12) Number of traffic stops per year
- Current 21,000 5 Year Growth 25,000
- 13) Number of on-view or officer initiated calls per year
- Current 42,000 5 Year Growth 50,000
- 14) Number of Other calls requiring a unit (education, assist motorist, standby, etc.)
- Current 8,000 5 Year Growth 12,000
- 15) Number of calls (included above) that are out of your zone.
- Current 100 5 Year Growth 150
- 16) Number of calls (included above) that are out of Pima County.
- Current 25 5 Year Growth 50
- 17) Number of calls (included above ) that are out of Arizona.



- Current 0 5 Year Growth 4
- 18) Number of arrests per year (other than traffic citations)
- Current 4,744 5 Year Growth 9,000
- 19) Number of ACIC/NCIC requests
- Current 70,000 5 Year Growth 100,000
- 21) Number of case report numbers issued per year.
- Current 21,000 5 Year Growth 25,000
- 22) Number of Mobile Data terminals
- Current 0 5 Year Growth 125
- 23) Number of station computers or others that would log-on to the network
- Current 45 5 Year Growth 100
- 24) Number of personnel that would require an individual log-on password
- Current 137 5 Year Growth 200
- 25) Highest typical number of officers than are on duty.
- Current 35 5 Year Growth 50

**Provisions of NFPA 1221 and CALEA**

**Annex D Computer-Aided Dispatching (CAD) Systems**



**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

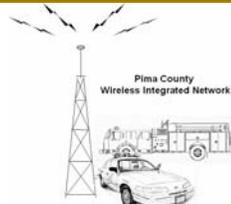
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

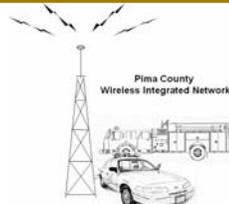
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

- Radio Station Frequencies
- Law Enforcement Frequency Bands
- Tohono O'odham 2000 demographics.pdf
- Organizational Chart

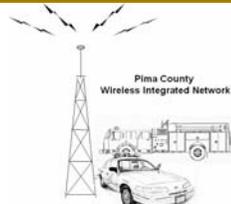
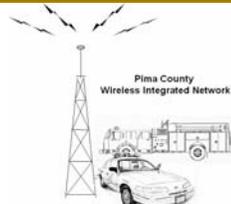


TABLE 2.1.18A Existing Interoperability

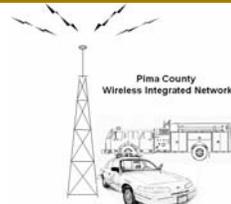
Tohono O'odham Tribal Police		Tohono O'odham Tribal Police		Tohono O'odham Tribal Police	
Agency Types		Agency Types		Agency Types	
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives
	Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection
	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration
	Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security
	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation
	Elephant Head Vol. FD		Pima County Sheriff's Dept.		Immigration and Customs Enforcement
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service
	Green Valley Fire District		Sahuarita PD		Bureau of Land Management
	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife
	Mt. Lemmon Fire District	X	Tohono O'odham Tribal Police		U.S. Forest Service
	Northwest Fire District		Tucson Airport Authority PD		U.S. Marshals Service
	Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety
	Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish
	Rincon Valley Fire District				
	Rural Metro Fire/Southwest Ambulance				
	South Tucson FD				
	Three Points FD				
	Tohono O' odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				



Agency Types	Fire Agencies
Tohono O'odham Tribal Police	
	Ajo/Gibson Vol. FD
	Arivaca Vol. FD
	Avra Valley Fire District
	Corona de Tucson Fire District
	Drexel Heights Fire District
	Elephant Head Vol. FD
	Golder Ranch Fire District
	Green Valley Fire District
	Helmet Peak Fire District
	Mt. Lemmon Fire District
	Northwest Fire District
	Pascua Pueblo FD
	Picture Rocks Fire District
	Rincon Valley Fire District
	Rural Metro Southwest Ambulance
	South Tucson FD
	Three Points FD
X	Tohono O'odham FD
	Tucson Airport Authority FD
	Tucson FD
	Ajo Ambulance
	Why Fire District

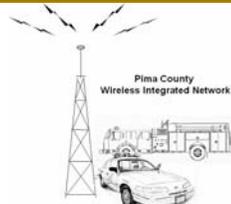
Agency Types	Police and Emergency Services Agencies
Tohono O'odham Tribal Police	
	Marana PD
	Oro Valley PD
	Pascua Yaqui PD
	Pima College Dept. of Public Safety
	Pima County OEM & Homeland Security
X	Pima County Sheriff's Dept.
	Pima County Sheriff's Dept. - Ajo
	Sahuarita PD
	South Tucson PD
	Tohono O'odham Tribal Police
	Tucson Airport Authority
	Tucson PD
	University of Arizona Police

Agency Types	Federal Agencies	Agencies
Tohono O'odham Tribal Police		
	Bureau of Alcohol, Tobacco, Firearms & Explosives	
X	Customs and Border Protection	
	Drug Enforcement Administration	
	Emergency Man. & Homeland Security	
X	Federal Bureau of Investigation	
X	Immigration and Customs Enforcement	
	National Park Service	
	Bureau of Land Management	
	U.S. Fish & Wildlife	
	U.S. Forest Service	
	U.S. Marshals Service	
X	Arizona Dept. of Public Safety	
	Arizona Game and Fish	



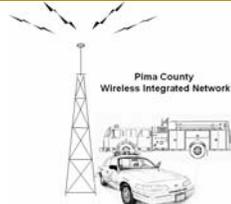
**TABLE 2.1.18C**  
**Tohono O'odham Tribal Police**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	4.0	
2	Improved Voice Radio Coverage – Central County	4.0	
3	Improved Voice Radio Coverage – Western County	5.0	
4	In-building Coverage	5.0	
5	Minimize Local Interference	5.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	3.0	
7	On-scene Fire Channels	2.0	
8	Monitored Firegrounds	3.0	
9	Emergency Alerting	3.0	
10	Workgroup Oriented Operation	4.0	
11	Voice Security	4.0	
12	Operational Boundary Transparency	5.0	
13	One System Serves All Agencies	5.0	
14	Interoperability through Dispatch	5.0	
15	Interoperability with Adjacent Counties	4.0	
16	Interoperability with State Agencies	4.0	
17	Interoperability with Federal Agencies	4.0	
18	Person Location	5.0	
19	System Control	5.0	
20	Recorded Operations	4.0	
21	Simplified User Operations	4.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	4.0	
23	Dispatch Capacity	4.0	
24	Dispatch Coverage	5.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	3.0	
26	Cross CAD Interconnection	1.0	
27	Mobile Data Criticality	3.0	
28	Vehicle Location	4.0	
29	EMS Telemetry	4.0	
30	High-Speed Broadband Service	4.0	
31	Mobile Applications	4.0	
32	Advanced Mobile Applications	4.0	
33	Access County Information	3.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	2.0	
35	Fire Station Alerting	4.0	
36	Paging over Cellular	4.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	5.0	
38	Owner-Controlled Backbone	5.0	
39	Microwave Connectivity	5.0	
40	Microwave Additional Capacity	5.0	
41	Regional Connectivity	5.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	5.0	
47	Centralized Maintenance	4.0	



**TABLE 2.1.18C**  
**Tohono O'odham Tribal Police**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	3.0	
49	Commonality of Equipment	5.0	
50	Multiple Sources	3.0	
51	Phased Implementation	4.0	
52	Tiered Subscriber Cost	4.0	
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.1.19 Tucson Airport Authority Police and Fire

### A. Current Environment

#### 1. Operational

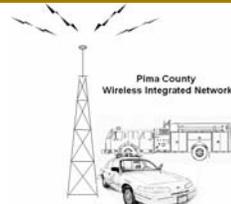
Airport Police and Fire operate at the Tucson Airport, the Ryan Airport and the drive routes in between. Jurisdictional area extends all over the City of Tucson for police assistance and for such incidents as pursuit of a stolen airport rental car. Fire responds mostly at Tucson Airport but will also go to Ryan. Fire responds to aircraft related incidents in the vicinity of the airport.

The airport campus is large in acreage and is tenant to several businesses such as Raytheon. Police, security, and fire assistance are provided over the entire airport grounds.

TAA Police also have a detective unit, personnel serving on the SWAT team, airport traffic, parking control and a K9 unit. Police operate 24 hours and have 10-12 people on duty during peak times of the day shift.

Fire has 5-7 people on peak duty during the day shift. Fire also has an EMT unit that must respond to all tenants on the airport campus.

The Airport Communications Center is the Public Safety Answering Point for airport police and fire. Currently it is located in the terminal building, but will likely be relocated sometime within the next five years to the international building which is located approximately ¼ mile west of the terminal. The backup dispatch is located at the Fire Station using standard radios. The firehouse backup dispatch location also serves as the TAA EOC. The EOC will eventually be co-relocated to the international building along with dispatch.



2. Functional

Coverage in the city is achieved by having users switch to an 800 MHz channel repeated from the Tucson Mountains.

3. Technical

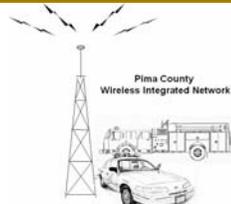
Both departments (Police and Fire) and all functions within each department share 4 conventional 800 MHz repeated channels. Tower sites are situated for coverage around the airports. Radios are very reliable and effective for airport work. The police department has encrypted communications including both to and from communication center consoles.

Radios are older Ericsson models with fairly poor sound quality in DES digital encrypted mode. Ericsson models MPA (circa 1992) and MRK (circa 1998) are currently being used.

4. Interoperability

TABLE 2.1.19A shows the existing direct interoperability capabilities with other agencies for the Airport Authority. Interoperability is a problem with Tucson PD (VHF conventional), Tucson Fire (UHF and VHF conventional) and SO (800 MHz trunked) because of different bands and protocols.

There is a tri-band repeater “gateway channel” that interconnects an 800 MHz channel to City channels in the UHF and VHF bands. Gateway channel does not provide reliable communications. The gateway channel is only in operation when needed to minimize unnecessary cross-channel traffic. The usage must be requested in advance. Interoperability is also a problem with the Air National Guard Fire Department (no access to channels).



B. Positive Attributes of Current Environment

1. Operational

Airport Police has access to the Sheriff's CAD system allowing an effective means of information sharing.

2. Functional

The Airport Authority provides service over quite a large campus area that includes buildings with commercial tenants such as Raytheon. The campus is a high intensity drug trafficking area. Airport Police will soon get a bomb dog team.

3. Technical

The four dedicated 800 MHz channels appear to provide sufficient channel capacity for the Airport operations based on no mention of channel congestion.

C. Desired Attributes of Current and Future Environment

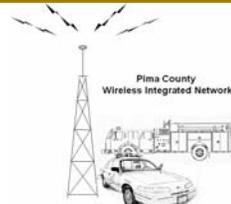
1. Operational

AVL is very important for officer safety for while patrolling the large outdoor airport grounds at night.

TAA predicts that switching to trunking technology will be a significant learning curve and the project should include a full battery of user type training.

2. Functional

The current 800 MHz conventional channels serve reasonably well south of Tucson near the airport. However, they fall short of the needed citywide radio coverage.



TAA requires improved in-building coverage in the buildings on the airport campus.

3. Technical

TAA Police need trunked talkgroup operation. Currently four distinct functions share one conventional channel and have to listen to each others traffic.

Police has a requirement for voiceless CAD dispatch over mobile data computers. This should significantly reduce the voice channel traffic load and pressure on communications center staff.

DTMF keypad on the user radios and telephone interconnect on the radio system are desired for making phone calls. This capability would serve as a backup for cell phones.

Fire operations require officer vital sign and man-down monitoring devices. Desire an interface port on portable radios allowing this messaging to be carried over the radio.

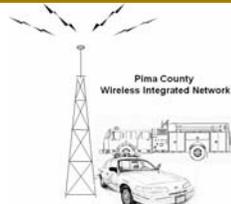
TAA requires 100% of operations to be recorded at the communications center.

Police desires an emergency switch on radios with emergency notification at the communications center.

Full encryption for all voice communications is a requirement today that continues in the future.

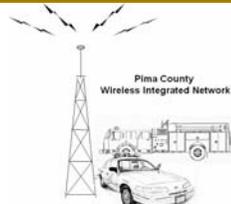
4. Interoperability Matrix

TABLE 2.1.19B shows the future direct interoperability requirements with other agencies for the Airport Authority.



5. Attributes Matrix

Please refer to TABLE 2.1.19C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Tucson Airport Authority

File Name: Tucson Airport Authority Final.doc

Date of Interview: February 24, 2006

Location of Interview: PCSD Administration Building

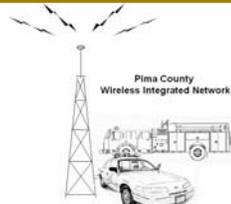
Persons Interviewed: Daniel Morelos, Director TAA Communications  
Michael Martinez, Chief TAA Police Department  
David Sandoval, Chief TAA Fire Department  
Mike Sacco, Pima County Sheriff Department, LT

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. Airport police and fire spend most of the time at the Tucson Airport, the Ryan Airport and the drive routes in between. Jurisdictional area extends all over the city of Tucson for police assistance and for such incidents as pursuit of a stolen airport rental car. Fire responds mostly at Tucson Airport but will also go to Ryan. Fire responds to aircraft related incidents in the vicinity of the airport.
2. The airport campus is large in acreage and is tenant to several businesses such as Raytheon. Police, security, and fire assistance are provided over the entire airport grounds.
3. TAA Police also have a detective unit, personnel serving on the SWAT team, airport traffic, parking control and a K9 unit. Police operate 24 hours and have 10-12 people on duty during peak times of the day shift.



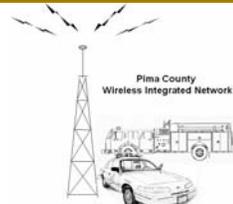
4. Fire has 5-7 people on peak duty during the day shift. Fire also has an EMT unit that must respond to all tenants on the airport campus.
5. The Airport Command Center is the dispatch point for airport police and fire. Currently it is located in the terminal building, but will likely be relocated sometime within the next five years to the international building which is located approximately  $\frac{1}{4}$  west of the terminal. The backup dispatch is located at the Fire Station using standard radios. The firehouse backup dispatch location also serves as the TAA EOC. The EOC will eventually be co-relocated to the international building along with dispatch.

Present Situation

1. Both departments and all functions within each department share 4 conventional 800 MHz repeated channels. Tower sites are situated for coverage around the airports. Radios are very reliable and effective for airport work. The police department has encryption capability including to/from communication center consoles.
2. The communication center is a secondary 911 PSAP. The calls are transferred from the City PSAP.
3. Coverage in the city is achieved by having users switch to an 800 MHz channel repeated from the Tucson Mountains.

Present Problems

1. There is a tri-band repeater "gateway channel" that cross repeats one of the 800 MHz channels to the UHF and VHF City channels. Gateway channel does not provide reliable communications.
2. Interoperability is a problem with the Air National Guard Fire Department (no access to National Guard channels).
3. Radios are older Ericsson models with fairly poor sound quality in DES digital encrypted mode. Ericsson models MPA (circa 1992) and MRK (circa 1998) are currently being used.



Future Requirements

1. Citywide radio coverage.
2. Full encryption for all voice communications.
3. Emergency switch on radios with emergency notification at the command center.
4. Fire operations require officer vital sign and man-down monitoring devices. Desire an interface port on portable radios allowing this messaging to be carried over the radio.
5. Trunked talk group operation. TAA Police has four distinct functions sharing one conventional channel and having to listen to each others traffic.
6. TAA requires 100% of operations to be recorded at the communications center.
7. TAA predicts that switching to trunking technology will be a significant learning curve and the project should include a full battery of user type training.
8. Police has a requirement for MDT for CAD dispatch. This should significantly reduce the voice channel traffic load and pressure on communications center staff.

Future Options

1. AVL capability.
2. Desire DTMF keypad on the radios and telephone interconnect in the system to use as a backup to cell phone for making phone calls.
3. Mobile Data Computers.

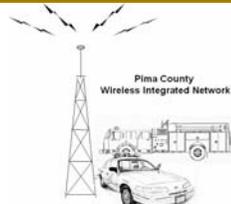
The draft of this record was sent to Captain Paul Wilson on April 3, 2006.

Corrected draft was returned to CTA Communications on 4/4/2006.

Interviewee Name & Address:

Captain Paul Wilson, PCSO  
1750 E. Benson Highway  
Tucson, AZ 85714

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## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: **Tucson Airport Authority Fire Department**

Contact Name: **David Sandoval**

Position: **Fire Chief**

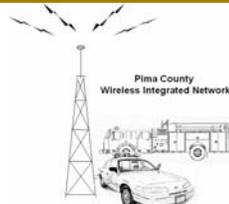
Phone: **520.573.8175**

Email: **dsandoval@tucsonairport.org**

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

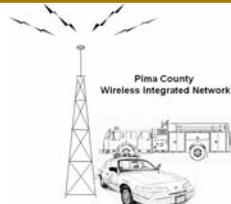
Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	Shift 4
Mobiles	7					
Portables	18					
Control Stations	1					
Paging units						
Other Devices						

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

14	800MHZ
4	400 MHZ



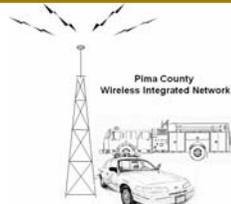
c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender	3	Yes
Pumper/ Engine	1	Yes
Ladder Truck		
Ambulance		
Patrol Vehicles		
Jail Transport		
Special Ops	1	Yes
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars	2	Yes
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

**Clarifications:**

Special Ops - Disaster Vehicle



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
2821 E. Airport Drive	3	Fire, Police, Maintenance

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_





**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Dispatcher Response				X		
Radio Coverage				X		
Radio Procedures			X			

- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.



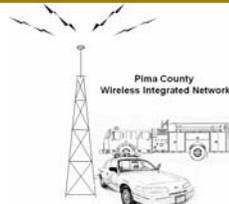
**Clarifications:**

1. Dispatchers are not specifically dedicated to the radio during fire emergency calls for service. They still answer answer telephones, view monitors, dispatch police calls, and operate security gates while handling and dispatching fire equipment.
2. Some areas on the Airport are not covered by radio due to buildings.
3. Use of radio verbage.

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
<b>Mobiles</b>				
<b>Portables</b>				
<b>Control Stations</b>				
<b>Paging units</b>				
<b>Other Devices</b>				



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Thank you for your assistance.

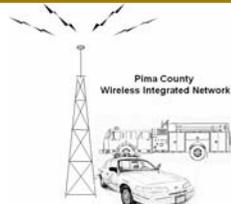
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



AIRPORT POLICE  
RADIO ✓

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

Organization/Agency Name: Tucson Airport Authority Police Department

Contact Name: Mike Martinez

Position: Chief

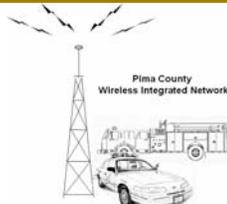
Phone: 573-4709

Email: mmartinez@tucsonairport.org

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

**I: RADIO UTILIZATION CURRENT SITUATION**

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2		Shift 3	Shift 4
Mobiles	9					
Portables	65					
Control Stations	10					
Paging units	46					
Other Devices	16					

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

Mobiles-7 shared by all shifts

Other Devices-cell phones

Portables- 28 are assigned to police officers. 18 are assigned to our traffic officers (non-police) 2 are assigned to our administrative technicians (non-police) The rest are pool radios shared by other agencies.

Other Devices-Cell phones assigned to individuals, patrol, traffic, and admin support.

Control Stations-All are located at the main terminal building.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

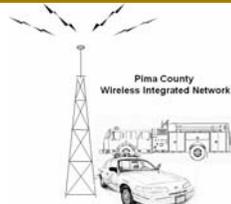
c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles	9	yes
Jail Transport		
Special Ops	1	yes
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars		
Other (Please Describe)	2	yes

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

**Clarifications:**

other-Chief's car and Patrol Truck
Special Ops-Mobile Command Post vehicle



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
TIA 7250 S. Tucson Blvd.	10	Public Safety and Operations

Clarifications:

\_\_\_\_\_

\_\_\_\_\_

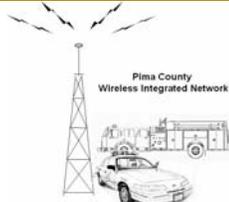
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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

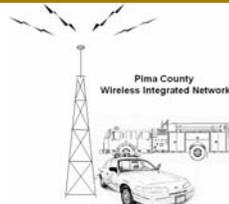
Radio Usage Information Survey  
 February 7, 2006

**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Dead spots in terminal			x			
Communicating w/ Ryan Field						x
Repeater problems			x			
Channel not working				x		
No interoperability w/other agencies						x
Not enough channels						x
Half the radios outdated						x

- 0 : No problem identified.
- 1 : Identified problem, currently not of concern. May become a concern in the future.
- 2 : Occasionally a problem, affects some operations but is generally worked around.
- 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
- 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
- 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

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Thank you for your assistance.

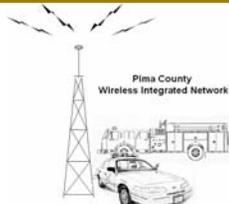
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



### 3. Mobile Data Survey

AIRPORT POLICE - MD

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

Organization/Agency Name: Tucson Airport Authority Police

Contact Name: Mike Martinez Position: Chief

Phone: 520-573-4709 Email: mmartinez@tucsonairport.org

---

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete.

**I: CURRENT SITUATION**

Mobile data equipment do you currently have None

Age: \_\_\_\_ Condition: \_\_\_\_ Adequate: \_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: \_\_\_\_ Name of CAD system: \_\_\_\_

Access to Records Management: \_\_\_\_ Name of RMS system: \_\_\_\_

Records functions available: \_\_\_\_

Field Reporting: \_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_

Email: \_\_\_\_ Outlook or web-based? \_\_\_\_

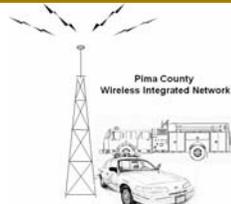
Text Messaging: Car to car: \_\_\_\_ Car to dispatch: \_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_ State: \_\_\_\_ National : \_\_\_\_

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Page 1 of 4

 COMMUNICATIONS



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

N/A

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

No near term need for MDTs. Long term need in future if department keeps growing

E.D. SPILLMAN

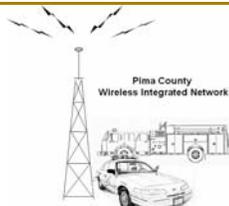
Functions: CAD and AVL

Geographical Areas: All over Tucson and Pima County

Information Sources: records, databases, NCIC, no CHRI.

Information Sharing: Yes

Equipment Upgrades, Personal Safety, Performance: N/A



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): 0

Commercial Service (Verizon, etc) : 0

Wi-Fi : 0

Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles				4	5
Wireless Handhelds (PDA's)	6	22	22	26	28
AVL equipped	0	6	7	7	8
Digital Pagers	46	0	46	46	48
Tone Voice Pagers	0	0			
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day <sup>24</sup>
CAD Dispatch	22 per day
Query (license checks, vehicle registrations, wanted persons, property checks)	22 per day
Car-to-car or car-to-dispatch message	N/A
Status updates	N/A
Emails	N/A



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Field Report	N/A
Other _____	
Other _____	
Other _____	

Any additional comments or questions you have regarding mobile data:  
Mobile data is not used by the department at this time. The need for this would be based on the size of the department in the future and other additional tasks placed on the dispatchers. If their tasks increased substantially, there would be a need for the department to use MDTs in their daily job functions.

\_\_\_\_\_

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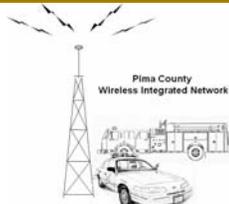
\_\_\_\_\_

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.                      Fax: (434) 239-9221  
P.O. Box 4579                                      Phone: (434) 239-9200  
Lynchburg, VA 24502-0579                      PCWIN@ctacommunications.com

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document!



#### 4. Computer Systems Checklist – Law Enforcement Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Law Enforcement Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Law Enforcement Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. The NFPA 1221 provisions have been adopted by the Commission on Accreditation for Law Enforcement Agencies (CALEA) for CAD systems. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

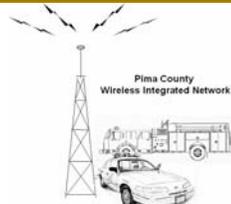
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.



**Law Enforcement Department Checklist**

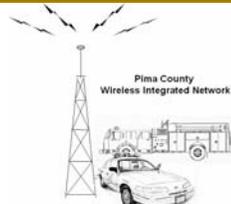
- 1) Department Name [Tucson Airport Authority Police Department](#)
- 2) Contact Name [Mike Martinez](#)
- 3) Contact Telephone Number [520 573-4709](#)
- 4) Primary Response Area [Tucson International Airport and Ryan Airfield](#)

[The Tucson International Airport \(TIA\) is located on 8,022 acres in southwestern Arizona's Pima County. In this location, TIA serves as the primary air carrier airport for the metropolitan Tucson area and many of the surrounding counties in southern Arizona. The Airport is approximately eight miles south of downtown Tucson and four and a half miles southwest of Davis Monthan Air Force Base.](#)

[The northern property boundaries are Valencia and Corona Roads; the Tucson-Nogales Highway establishes the western boundary; the southern boundary is one mile south of Nogales-Old Vail Connection Road and Craycroft Road forms the eastern boundary. Tucson International Airport is managed and administered by the Tucson Airport Authority, which was established in 1948 and has management authority of the Airport to 2048.](#)

[Ryan Airfield is a general aviation reliever airport located 12 miles west of TIA at the intersection of Ajo Way and Valencia Road. Ryan Air Field is located at Valencia and SR 86, to determine its boundaries; Ryan Field is managed and administered by the Tucson Airport Authority and has management authority of the Airfield.](#)

- 5) Number of Personnel  
Current [46](#) 5 Year Growth [Same](#)
- 6) Number of Uniform vehicles  
Current [5](#) 5 Year Growth [Same](#)
- 7) Number of Detective and radio equipped administrative vehicles  
Current [1](#) 5 Year Growth [Same](#)



- 8) Number and description of specialized vehicles (such as SWAT, Command, Crime Scene, etc.)
- Description [SWAT \(operated by Pima Regional SWAT\)](#)
- Current [N/A](#) 5 Year Growth [Same](#)
- Description [Command Post Vehicle](#)
- Current [1](#) 5 Year Growth [Same](#)
- 9) Number of stations or precincts
- Current [1](#) 5 Year Growth [Same](#)
- 10) Number of response zones or beats
- Current [7](#) 5 Year Growth [1](#)
- 11) Number of dispatched calls per year
- Current [7916](#) 5 Year Growth [8392 – Based on 5-yr. Avg.](#)
- 12) Number of traffic stops per year
- Current [2550](#) 5 Year Growth [2594 – Based on 5-yr. Avg.](#)
- 13) Number of on-view or officer initiated calls per year
- Current [3014](#) 5 Year Growth [3043 – Based on 5-yr. Avg.](#)
- 14) Number of Other calls requiring a unit (education, assist motorist, standby, etc.)
- Current [282](#) 5 Year Growth [384 – Based on 5-yr. Avg.](#)
- 15) Number of calls (included above) that are out of your zone.



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

Current [173](#) 5 Year Growth [179 – Based on 5-yr. Avg.](#)

16) Number of calls (included above) that are out of Pima County.

Current [N/A](#) 5 Year Growth [N/A](#)

17) Number of calls (included above ) that are out of Arizona.

Current [N/A](#) 5 Year Growth [N/A](#)

18) Number of arrests per year (other than traffic citations)

Current [392](#) 5 Year Growth [579 – Based on 5-yr. Avg.](#)

19) Number of ACIC/NCIC requests

Current [73691](#) 5 Year Growth [72448– Based on 5-yr. Avg.](#)

21) Number of case report numbers issued per year.

Current [7000](#) 5 Year Growth [1000](#)

22) Number of Mobile Data terminals

Current [0](#) 5 Year Growth [Same](#)

23) Number of station computers or others that would log-on to the network

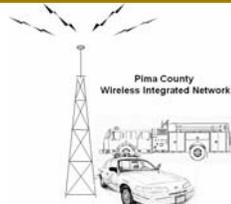
Current [16](#) 5 Year Growth [3](#)

24) Number of personnel that would require an individual log-on password

Current [64](#) 5 Year Growth [1](#)

25) Highest typical number of officers than are on duty.

Current [5](#) 5 Year Growth [Same](#)



**Provisions of NFPA 1221 and CALEA**

**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

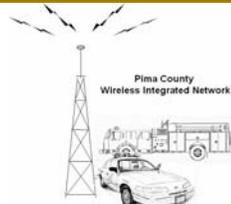
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

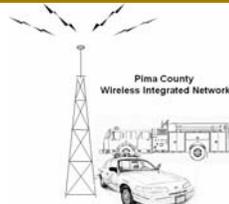
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Tucson Airport Authority

File Name: Tucson Airport Authority Final.doc

Date of Interview: February 24, 2006

Location of Interview: PCSD Administration Building

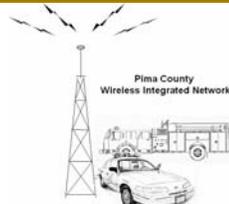
Persons Interviewed: Daniel Morelos, Director TAA Communications  
Michael Martinez, Chief TAA Police Department  
David Sandoval, Chief TAA Fire Department  
Mike Sacco, Pima County Sheriff Department, LT

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. Airport police and fire spend most of the time at the Tucson Airport, the Ryan Airport and the drive routes in between. Jurisdictional area extends all over the city of Tucson for police assistance and for such incidents as pursuit of a stolen airport rental car. Fire responds mostly at Tucson Airport but will also go to Ryan. Fire responds to aircraft related incidents in the vicinity of the airport.
2. The airport campus is large in acreage and is tenant to several businesses such as Raytheon. Police, security, and fire assistance are provided over the entire airport grounds.
3. TAA Police also have a detective unit, personnel serving on the SWAT team, airport traffic, parking control and a K9 unit. Police operate 24 hours and have 10-12 people on duty during peak times of the day shift.



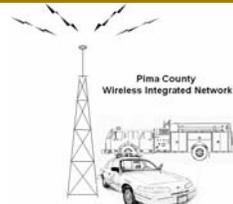
4. Fire has 5-7 people on peak duty during the day shift. Fire also has an EMT unit that must respond to all tenants on the airport campus.
5. The Airport Command Center is the dispatch point for airport police and fire. Currently it is located in the terminal building, but will likely be relocated sometime within the next five years to the international building which is located approximately ¼ west of the terminal. The backup dispatch is located at the Fire Station using standard radios. The firehouse backup dispatch location also serves as the TAA EOC. The EOC will eventually be co-relocated to the international building along with dispatch.

Present Situation

1. Both departments and all functions within each department share 4 conventional 800 MHz repeated channels. Tower sites are situated for coverage around the airports. Radios are very reliable and effective for airport work. The police department has encryption capability including to/from communication center consoles.
2. The communication center is a secondary 911 PSAP. The calls are transferred from the City PSAP.
3. Coverage in the city is achieved by having users switch to an 800 MHz channel repeated from the Tucson Mountains.

Present Problems

1. There is a tri-band repeater “gateway channel” that cross repeats one of the 800 MHz channels to the UHF and VHF City channels. Gateway channel does not provide reliable communications.
2. Interoperability is a problem with the Air National Guard Fire Department (no access to National Guard channels).
3. Radios are older Ericsson models with fairly poor sound quality in DES digital encrypted mode. Ericsson models MPA (circa 1992) and MRK (circa 1998) are currently being used.



Future Requirements

1. Citywide radio coverage.
2. Full encryption for all voice communications.
3. Emergency switch on radios with emergency notification at the command center.
4. Fire operations require officer vital sign and man-down monitoring devices. Desire an interface port on portable radios allowing this messaging to be carried over the radio.
5. Trunked talk group operation. TAA Police has four distinct functions sharing one conventional channel and having to listen to each others traffic.
6. TAA requires 100% of operations to be recorded at the communications center.
7. TAA predicts that switching to trunking technology will be a significant learning curve and the project should include a full battery of user type training.
8. Police has a requirement for MDT for CAD dispatch. This should significantly reduce the voice channel traffic load and pressure on communications center staff.

Future Options

1. AVL capability.
2. Desire DTMF keypad on the radios and telephone interconnect in the system to use as a backup to cell phone for making phone calls.
3. Mobile Data Computers.

The draft of this record was sent to Captain Paul Wilson on April 3, 2006.

Corrected draft was returned to CTA Communications on 4/4/2006.

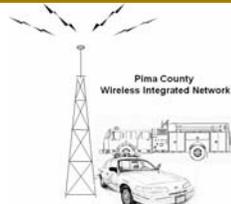
Interviewee Name & Address:

Captain Paul Wilson, PCSO

1750 E. Benson Highway

Tucson, AZ 85714

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**Instructions for the Fire and EMS Department Checklist**

The Pima County community is in the process of reviewing the current communications system. We are asking that the Fire and EMS Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity, as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

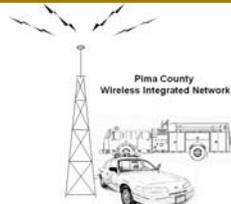
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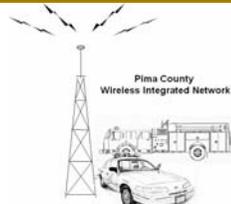
This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.



**Fire and EMS Department Checklist**

- 1) Department Name Tucson Airport Authority Fire Department
- 2) Contact Name David Sandoval, Fire Chief
- 3) Contact Telephone Number 520.573.8175
- 4) Primary Response Area Tucson Intenational Airport  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 18 5 Year Growth 20
- 6) Number of Fire Trucks and/or Engines  
Current 5 5 Year Growth 6
- 7) Number of Rescue and/or EMS response vehicles  
Current 1 5 Year Growth 1
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
Description Mass Casualty Heavy Rescue  
Current 1 5 Year Growth 1  
Description Airport ARFF Vehicles  
Current 3 5 Year Growth 4



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

Description \_\_\_\_\_

Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_

9) Number of Fire or EMS stations

Current 1 5 Year Growth 1

10) Number of Fire and/or Response Zones

Current 1 5 Year Growth 1

11) Number of Fire runs per year

Current 400 5 Year Growth 500

12) Number of EMS responses per year

Current 320 5 Year Growth 380

13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.)

Current 120 5 Year Growth 150

14) Number of calls (included above) that are out of your District/Jurisdiction.

Current 20 5 Year Growth 20

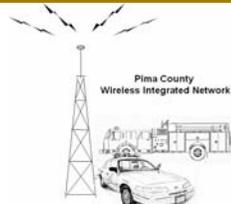
15) Number of calls (included above) that are out of Pima County.

Current 0 5 Year Growth 0

16) Number of calls (included above ) that are out of Arizona.

Current 0 5 Year Growth 0

17) Number of HAZMAT pre-plans



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

Current 0 5 Year Growth 0

18) Number of structure and location pre-plans

Current 30 5 Year Growth 30

19) Number of Move-up Plans

Current 0 5 Year Growth 0

20) Number of fire hydrants

Current 135 5 Year Growth 135

21) Number of Mobile Data terminals

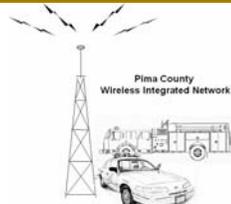
Current 0 5 Year Growth 10

22) Number of Station Computers or others that would log-on to the network

Current 5 5 Year Growth 5

23) Number of personnel that would require an individual log-on password

Current 18 5 Year Growth 20



**Provisions of NFPA 1221  
Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

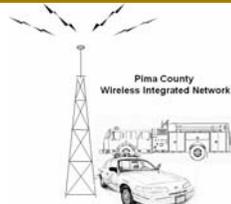
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

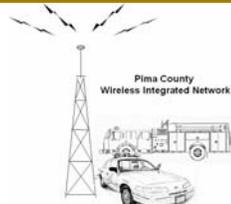
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

Tucson Airport Police and Fire provided CTA with the following documentation items:

- Law Enforcement Frequency Bands
- Tucson Airport FD PD Interoperability Table
- Channel Plan – Communications Needs Assessment Questionnaire 2/22/06

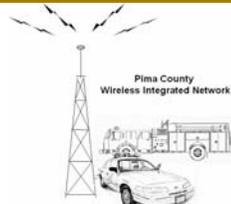


TABLE 2.1.19A Existing Interoperability

Agency Types		Agency Types		Agency Types	
Tucson Airport Authority FD		Tucson Airport Authority FD		Tucson Airport Authority FD	
Tucson Airport Authority PD		Tucson Airport Authority PD		Tucson Airport Authority PD	
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives
	Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection
	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration
	Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security
	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation
	Elephant Head Vol. FD		Pima County Sheriff's Dept.	X	Immigration and Customs Enforcement
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service
	Green Valley Fire District		Sahuarita PD		Bureau of Land Management
	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife
	Mt. Lemmon Fire District	X	Tohono O'odham Tribal Police		U.S. Forest Service
	Northwest Fire District		Tucson Airport Authority PD		U.S. Marshals Service
	Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety
	Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish
	Rincon Valley Fire District				
	Rural Metro Fire/Southwest Ambulance				
	South Tucson FD				
	Three Points FD				
	Tohono O' odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				

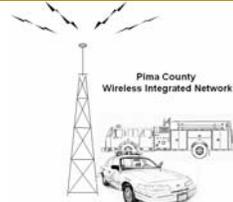


TABLE 2.1.19B Future Interoperability

Agency Types		
Tucson Airport Authority		
Tucson Airport Authority FD		
	Ajo/Gibson Vol. FD	
	Arivaca Vol. FD	
	Avra Valley Fire District	
	Corona de Tucson Fire District	
	Drexel Heights Fire District	
	Elephant Head Vol. FD	
	Golder Ranch Fire District	
	Green Valley Fire District	
	Helmet Peak Fire District	
	Mt. Lemmon Fire District	
	Northwest Fire District	
	Pascua Pueblo FD	
	Picture Rocks Fire District	
	Rincon Valley Fire District	
	Rural Metro Southwest Ambulance	
	South Tucson FD	
	Three Points FD	
	Tohono O'odham FD	
	Tucson Airport Authority FD	
	Tucson FD	
	Ajo Ambulance	
	Why Fire District	

Agency Types		
Tucson Airport Authority		
Tucson Airport Authority FD		
	Marana PD	
	Oro Valley PD	
	Pascua Yaqui PD	
	Pima College Dept. of Public Safety	
	Pima County OEM & Homeland Security	
	Pima County Sheriff's Dept.	X
	Pima County Sheriff's Dept. - Ajo	
	Sahuarita PD	
	South Tucson PD	
	Tohono O'odham Tribal Police	
	Tucson Airport Authority	
	Tucson PD	
	University of Arizona Police	

Agency Types		
Tucson Airport Authority		
Tucson Airport Authority FD		
	Bureau of Alcohol, Tobacco, Firearms & Explosives	
	Customs and Border Protection	X
	Drug Enforcement Administration	
	Emergency Man. & Homeland Security	
	Federal Bureau of Investigation	
	Immigration and Customs Enforcement	
	National Park Service	
	Bureau of Land Management	
	U.S. Fish & Wildlife	
	U.S. Forest Service	
	U.S. Marshals Service	
	Arizona Dept. of Public Safety	X
	Arizona Game and Fish	X

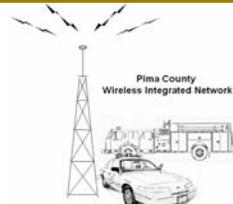
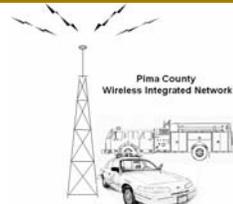


TABLE 2.1.19C  
 Tucson Airport Authority Fire Dept. & Tucson Airport Authority Police

DESIGNATOR NO.	ATTRIBUTE	Tucson Airport Authority Fire Dept.	COMMENTS	Tucson Airport Authority Police	COMMENTS
<b>Radio Coverage</b>					
1	Improved Voice Radio Coverage – Eastern County			5.0	
2	Improved Voice Radio Coverage – Central County			4.0	
3	Improved Voice Radio Coverage – Western County			4.0	
4	In-building Coverage			5.0	
5	Minimize Local Interference			5.0	
<b>Voice Radio Operations</b>					
6	Increased Channel Capacity			4.0	
7	On-scene Fire Channels			5.0	
8	Monitored Firegrounds			5.0	
9	Emergency Alerting			5.0	
10	Workgroup Oriented Operation			3.0	
11	Voice Security			4.0	
12	Operational Boundary Transparency			4.0	
13	One System Serves All Agencies			2.0	
14	Interoperability through Dispatch			3.0	
15	Interoperability with Adjacent Counties			4.0	
16	Interoperability with State Agencies			4.0	
17	Interoperability with Federal Agencies			4.0	
18	Person Location			4.0	
19	System Control			4.0	
20	Recorded Operations			5.0	
21	Simplified User Operations			5.0	
<b>Dispatch Operations</b>					
22	Increased Dispatch Channel Capacity			5.0	
23	Dispatch Capacity			5.0	
24	Dispatch Coverage			5.0	
<b>Mobile Data Functions</b>					
25	One Mobile Data Network Serves All Agencies			2.0	
26	Cross CAD Interconnection			3.0	
27	Mobile Data Criticality			3.0	
28	Vehicle Location			4.0	
29	EMS Telemetry			4.0	
30	High-Speed Broadband Service			3.0	
31	Mobile Applications			4.0	
32	Advanced Mobile Applications			4.0	
33	Access County Information			2.0	
<b>Paging and Alerting Operations</b>					
34	Private Personnel Paging			3.0	
35	Fire Station Alerting			4.0	
36	Paging over Cellular			5.0	
<b>Infrastructure Capabilities</b>					
37	Future Expansion			4.0	
38	Owner-Controlled Backbone			3.0	
39	Microwave Connectivity			3.0	
40	Microwave Additional Capacity			3.0	
41	Regional Connectivity			4.0	
<b>Reliability and Availability</b>					
42	Survivability			5.0	
43	Reliability/Failure Hierarchy			5.0	
44	Single Points of Failure			5.0	
45	Power Backup			5.0	
<b>Training and Maintenance</b>					
46	Staffing and Training			5.0	
47	Centralized Maintenance			3.0	
<b>Cost and Procurement</b>					
48	Competitive Procurement Process			2.0	
49	Commonality of Equipment			3.0	
50	Multiple Sources			1.0	
51	Phased Implementation			3.0	
52	Tiered Subscriber Cost			3.0	
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.					



## 2.1.20 University of Arizona Police

### A. Current Environment

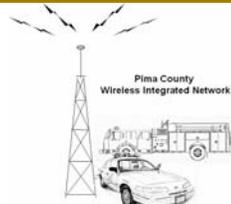
#### 1. Operational

The University of Arizona Police Department (UAPD) is a CALEA certified police agency. The Department provides law enforcement and security services on campus for the university community. Responsibility is the main campus and outlying university properties, including the Mount Graham International Observatory site near Safford. Through agreements with other law enforcement agencies, the department can take action as needed and provide assistance to other law enforcement agencies. The department is comprised of the following Sections and Units:

The Communications Section is responsible for the radio dispatching of UAPD personnel to calls for service. The Communications Section is also responsible for monitoring and managing the 911 system pertaining to the University of Arizona.

The Field Operations Division performs daily patrol operations on campus. Patrol officers work primarily on campus, but maintain a concurrent patrol boundary and working agreements with the Tucson Police Department. UAPD officers regularly patrol the University community between 8th Street, Lester Street, Euclid Avenue and Campbell.

The Investigations Unit is comprised of a detective sergeant and four detectives. The detectives have constant contact with adjoining police and victim-support agencies and the county attorney's office, sharing criminal information and trends.



The UAPD Security Unit provides physical security of the many buildings on campus. Police aides are responsible for securing and providing access to buildings for everyday University business. Police aides also patrol the campus community on foot and by vehicle or bicycle.

The Patrol Unit functions with three patrol teams, each with a sergeant, that patrol the campus 24 hours a day, seven days a week. Patrol officers are responsible for a wide variety of functions, including the primary law enforcement duties for the campus.

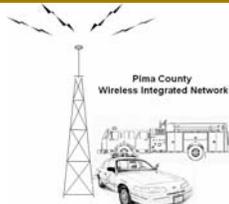
The K-9 Unit is comprised of one officer and a canine. This Unit is a canine explosive detection team, related to the Bureau of Alcohol, Tobacco and Firearms (ATF) canine explosive detection program.

2. Functional

The University of Arizona Police Department and Communications Center is located on campus near Speedway and Campbell; 1852 First Street in Tucson Arizona. Dispatchers have the ability to transfer misdirected 911 calls to other 911 Centers in the metropolitan area (TPD, Sheriff Department, and other fire departments). The center handles approximately 64,000 calls a year. Calls not related to the University are transferred to TPD, PCSD or appropriate fire med departments. The Communications Section is also responsible for monitoring approximately 2,500 alarm points on campus.

UAPD Shifts:

Day:	0600 to 1600
Swing:	1500 to 0100
Graveyard:	2030 to 0630



Typically there are 48 officers and 16 patrols assigned to the main campus. There are three work shifts: day shift, 15-20 units, nightshift, 3-5 units, and swing shift 3-5 units.

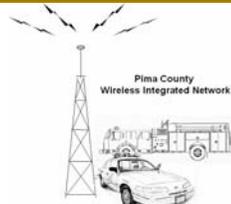
The primary issue with the existing system is that there is no encryption capability and lack there is no tracking technology in place. There are coverage issues below grade in the Medical Center. Mobile data text messaging is fragmented.

3. Technical

The Communications Center is equipped has three MOTOROLA CENTRACOM Gold Elite Consoles. Each console is equipped with three (3) Main Campus frequencies, two (2) MGIO frequencies, and one (1) Tri-band patch. Radio ID's are received on the Main Campus frequencies. The system has multi-elect playback features. The CAD system is a Northrop Grumman CAD system. It is the same model as the TPD system. CJIS, ACJIS, and local records are available at the Communications Center.

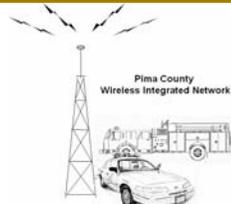
The primary radio system is a conventional UHF system. There are three channels operating from three repeater sites on campus. The primary channel is located at the Main Administration building. The repeater is a MOTOROLA repeater. The other two repeaters are located at the Southwest (Facilities Building) and Southeast (Stadium) part of the campus. The matrix below provides a summary:

Channel	TX Frequency	RX Frequency	TX PL	RX Squelch
UAPD-1	465.35000 MHz	460.35000 MHz	TPL 100.0 Hz	TPL 100.0 Hz
UAPD-2	465.55000 MHz	460.55000 MHz	TPL 100.0 Hz	TPL 100.0 Hz
UAPD-3	465.25000 MHz	460.25000 MHz	TPL 100.0 Hz	TPL 100.0 Hz
MGIO-1 *	460.35000 MHz	460.35000 MHz	TPL 151.4 Hz	TPL 151.4 Hz
MGIO-2	465.35000 MHz	460.35000 MHz	TPL 400.0 Hz	TPL 400.0 Hz



Note: MGIO-1 – same frequency as UAPD-1. There is a T1 connection to Tucson – DPS that is relayed to a microwave link to the DPS repeater on Heliograph Peak in Safford, AZ.

UAPD vehicles are equipped with MOTOROLA SPECTRA mobiles. They have an operating power rating of 45 watts or 90-110 watts. The Portables are MOTOROLA HT1000 and have an operating power rating of 4 watts. The Non-Fixed radio inventory and future requirements are listed here:



Equipment	Inventory	5 YR Inv.	10 YR Inv.	15 YR Inv.	20 YR Inv.
Mobiles	39	49	50	60	65
Portables	177	190	200	210	220
Control Stations	5	5	6	7	8

The Mobile Data system works with the Northrop Grumman CAD and RMS system. The UAPD has thirty (30) 911 Data and four (4) Panasonic Toughbook MTC's. Report transfers, CAD/ Records access, and Text messaging to and from vehicles are some of the primary features utilized.

4. Interoperability

TABLE 2.1.20A shows the existing direct interoperability capabilities with other agencies for the UOP. Field personnel communicate with the Tucson PD through the Tucson Mtn. Tri-band (VHF, UHF, and 800 MHz) Gateway repeater frequencies. They test mobiles and portables every weekend switching for night to day.

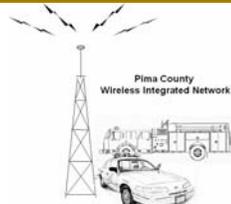
Of the radios assigned to department personnel, 23 radios operate in the UHF band and 42 radios operate in VHF band. This is done to facilitate interoperability with other agencies. 18 of the VHF radios are assigned to TPD channels for interoperability with them.

B. Positive Attributes of Current Environment

1. Operational

Support for special events is provided by Pima County Sheriff, City of Tucson Police, Department of Public Safety.

2. Functional



3. Technical

The UAPD has a Mobile Command Post stationed at the University Stadium. It is equipped with two (2) Star Lite radio consoles. The Mobile Command Post is equipped with frequencies: 37 (UHF), 38 (VHF) and 10 (800) MHz to be used for interoperability purposes during special events.

C. Desired Attributes of Current and Future Environment

1. Operational

The new system should be built to a high quality standard and have redundancy and fault tolerance built into it. Radios should offer technology features such as encrypted communications, improved performance, GPS location capabilities, text messaging, group call, telephone interconnect, and private call.

2. Functional

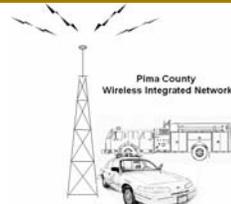
The new system should have capacity to support the department's long-term growth.

The ability to communicate inside heavy buildings around the campus and throughout the campus without having to manually change channels is an important feature.

3. Technical

The new system should address AVL, GPS location technologies, support mobiles that are mounted on in vehicles and upgrade the voice system.

There is a requirement to improve mobile data wide area coverage and provide NCIC, ACIC, vehicle status, criminal history, and provide internet access in the vehicles.

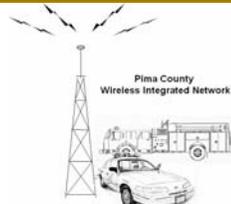


4. Interoperability Matrix

TABLE 2.1.20B shows the future direct interoperability requirements for the UOP. It is desirable to have common frequencies or talk-groups available to simplify radio protocol procedures and monitoring to facilitate interoperability with other agencies.

5. Attributes Matrix

Please refer to TABLE 2.1.20C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - **University of Arizona  
Police Department**

**File Name:** - **022806 U of A Police Department Interview  
Record Final.doc**

**Date of Interview:** - **February 28, 2006**

Name	Department/ Title	Phone	Email
Luis Puig	UAP Ops/ Support Coordinator	520 626 8256	lpuig@vapd.arizona.edu
Mathew Fenton	UAP Comm. Supervisor	520 621 2704	mfenton@vapd.arizona.edu
Mike Calvin	Creative Communications	520 631 5394	Calvin.ike@msn.com
Kevin Haywood	UAPD	520 621 9530	haywood@vapd.arizona.edu

**Location of Interview:** - **Pima County Sheriff Department**

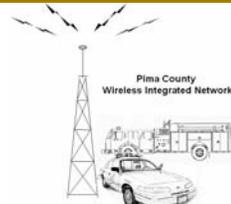
**Persons Interviewed:** - **Mike Calvin, Senior Account Manager**

**CTA Interviewer:** - **Harry Rote and Roscoe Mitchell**

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. The University of Arizona Police Department is a CALEA certified police agency. The Department provides law enforcement and security services on campus for the university community. Responsibility is the main campus and outlying university properties, including the Mount Graham International Observatory site near Safford. Through agreements with other law enforcement agencies, the department can take action as needed and provide assistance to other law enforcement agencies.



The department is comprised of the following Sections and Units:

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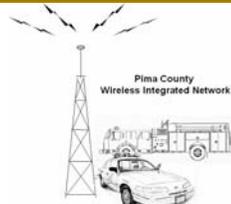
The UAPD Security Unit provides physical security of the many buildings on campus. Police aides are responsible for securing and providing access to buildings for everyday University business. Police aides also patrol the campus community on foot and by vehicle or bicycle.

The Patrol Unit functions with three patrol teams, each with a sergeant, that patrol the campus 24 hours a day, seven days a week. Patrol officers are responsible for a wide variety of functions, including the primary law enforcement duties for the campus.

The K-9 Unit is comprised of one officer and a canine. This Unit is a canine explosive detection team, related to the Bureau of Alcohol, Tobacco and Firearms (ATF) canine explosive detection program.

### **Present Situation**

1. The University of Arizona Police Department and Communications Center is located on campus near Speedway and Campbell; 1852 First Street in Tucson Arizona. Dispatchers have the ability to transfer misdirected 911 calls to other 911 Centers in the metropolitan area (TPD, Sheriff Department, and other fire departments). The center handles approximately 64,000 calls a year. Calls not related to the University are transferred to TPD, PCSD or appropriate fire med departments. The Communications Section is also responsible for monitoring approximately 2,500 alarm points on campus.



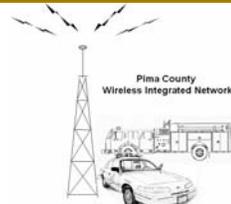
UAPD Shifts: Day: 0600 to 1600  
 Swing: 1500 to 0100  
 Graveyard: 2030 to 0630

2. There are three MOTOROLA CENTRACOM Gold Elite Consoles at the PSAP. Each console is equipped with three (3) Main Campus frequencies, two (2) MGIO frequencies, and one (1) Tri-band patch. Radio ID's are received on the Main Campus frequencies. The system has multi-elect playback features.
3. The CAD system is a Northrop Grumman CAD system. It is the same model as the TPD system. CJIS, ACJIS, and local records are available at the Communications Center.
4. The primary radio system is a conventional UHF system. There are three channels operating from three repeater sites on campus. The primary channel is located at the Main Administration building. The repeater is a MOTOROLA repeater. The other two repeaters are located at the Southwest (Facilities Building) and Southeast (Stadium) part of the campus. The matrix below provides a summary:

Channel	TX Frequency	RX Frequency	TX PL	RX Squelch
UAPD-1	465.35000 MHz	460.35000 MHz	TPL 100.0 Hz	TPL 100.0 Hz
UAPD-2	465.55000 MHz	460.55000 MHz	TPL 100.0 Hz	TPL 100.0 Hz
UAPD-3	465.25000 MHz	460.25000 MHz	TPL 100.0 Hz	TPL 100.0 Hz
MGIO-1 *	460.35000 MHz	460.35000 MHz	TPL 151.4 Hz	TPL 151.4 Hz
MGIO-2	465.35000 MHz	460.35000 MHz	TPL 400.0 Hz	TPL 400.0 Hz

Note: MGIO-1 – same frequency as UAPD-1. There is a T1 connection to Tucson AZ – DPS that is relayed to a microwave link to the DPS repeater on Heliograph Peak in Safford, AZ.

5. Field personnel talk to Tucson PD Tri-band (UHF, VHF and 800 MHz) Gateway repeater frequencies. They test mobiles and portables every weekend switching for night to day.
6. UAPD uses MOTOROLA SPECTRA mobiles in vehicles (45 watts and 90-110 watts). The Portables are MOTOROLA HT1000 (4 watts).
7. Typically there are 48 officers and 16 patrols assigned to the main campus. There are three work 3 shifts: day shift, 15-20 units, nightshift, 3-5 units, and swing shift 3-5 units. To support special events UOA has 25 units on duty. This staffing is provided by the Sheriff, Tucson police, and DPS.



8. Radios:

Equipment	Inventory	5 YR Inv.	10 YR Inv.	15 YR Inv.	20 YR Inv.
Mobiles	39	49	50	60	65
Portables	177	190	200	210	220
Control Stations	5	5	6	7	8

Note: 123 radios operate in the UHF band and 42 radios operate in VHF band. 18 of the VHF radios are assigned to TPD channels for interoperability purposes.

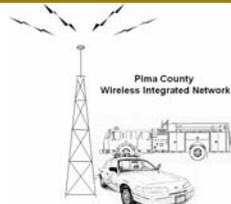
- The UAPD has a Mobile Command Post stationed at the University Stadium. It is equipped with two (2) Star Lite radio consoles. The Mobile Command Post is equipped with frequencies: 37 (UHF), 38 (VHF) and 10 (800) MHz to be used for interoperability purposes during special events. The assignments have been provided to CTA.
- The Mobile Data system works with the Northrup Grumman CAD and RMS system. The UAPD has thirty (30) 911 Data and four (4) Panasonic Toughbook MTC's. Report transfers, CAD/ Records access, and Text messaging to and from vehicles are some of the primary features utilized.

**Present Problems**

- Major problems, rated severe (5) is lack of encryption capability and lack of GPS location capabilities.
- There are coverage issues below grade in the Medical Center.
- Mobile data text messaging is fragmented.

**Future Requirements**

- There is a need for AVL, GPS location technologies.
- There is a requirement to mount mobile radios in all vehicles.
- Improved coverage and reliability for both voice and data applications.



4. Mobile data applications must support NCIC, ACIC, vehicle status, criminal history access in the vehicles.
5. Access to the Internet in vehicles is needed.

The draft of this record was sent to Mike Calvin on March 28, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

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## 2. Radio Usage Form

4

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** The University of Arizona Police Department

**Contact Name:** Luis Puig                      **Position:** Operations Support Coordinator

**Phone:** (520) 626-8256                      **Email:** lpuig@uapd.arizona.edu

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Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

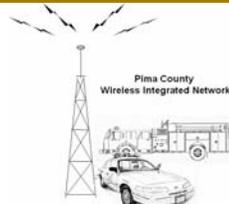
**I: RADIO UTILIZATION CURRENT SITUATION**

a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

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 Page 1 of 9



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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Radio Units	A	B	C	D	E	F
	Inventory	Shift 1	Shift 2		Shift 3	Shift 4
Mobiles	39					
Portables	177	69	20		11	15
Control Stations	5	3	2		2	
Paging units						
Other Devices						

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

123 portables operate in UHF

\* 42 portables operate in VHF

12 portables operate in ??? *WHP*

\* 18 of the 42 portables that operate in VHF are Tucson PD radios allowing officers to monitor and talk to TPD dispatchers when necessary

Shift 1 = Dayshift 0600 - 1600

Shift 2 = Swings 1500 - 01:00

Shift 3 = Graveyard 20:30 - 06:30

Shift 4 = Non-Shift Assignments



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles	15	Yes
Jail Transport		
Special Ops	1	Yes
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck	6	No
Utility Trucks		
Highway Maintenance		
Vans	1	No
Buses		
Cars	16	15 (yes) 1 (no)
Other (Please Describe)	8	Yes

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

UAPD has 39 Vehicles and 8 Motorcycles

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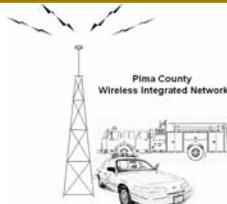
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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

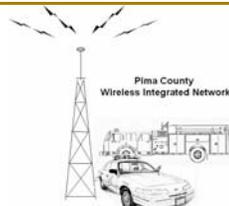
d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
1852 E First St	3	Law Enforcement/PSAP
1852 E First St (Mobile Command Post)	2	Special Assignments: Football Games, Spring Fling, Back-Up Communications

**Clarifications:**

UAPD Communications is a primary PSAP with three work stations. Each station is equipped with a Motorola Centracom Elite radio console (Centracom Gold Series). 3 Frequencies for Main Campus, 2 for MGIO, 1 Tri-Band (Gateway) to communicate with other Public Safety Agencies in Pima County. Radio ID's are received on 3 main campus frequencies. System has multiselect, patch, and play back features. UAPD answers all incoming 9-1-1 calls for Main UA Campus. Fire and Medical calls get transferred to City of Tucson Communications, but an Officer is always dispatched to these calls.

UAPD's Mobile Command Post (MCP) is equipped with two Motorola Command Star Lite radio consoles. It operates 37 UHF, 38 VHF, and 10 (800) MHz frequencies. (see attached list of frequency banks)





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

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	Tx Frequency	Rx Frequency	Tx PL	Rx Squelch
UAPD - 1	465.35000MHz	460.35000MHz	TPL 100.0HZ 1Z	TPL 100.0HZ 1Z
UAPD - 2	465.55000MHz	460.55000MHz	TPL 100.0 Hz 1Z	TPL 100.0HZ 1Z
UAPD - 3	465.25000MHz	460.25000MHz	TPL 100.0 Hz 1Z	TPL 100.0HZ 1Z
*MGIO - 1	460.35000MHz	460.35000MHz	TPL 151.4 Hz 5Z	TPL 151.4HZ 5Z
*MGIO - uses same frequency as UAPD - 1. It has a T-one connection going to Tucson AZ-DPS which is microwaved to DPS repeater on Heliograph Peak in Safford, Az.				
MGIO - 2	465.37500MHz	460.37500MHz	TPL 400.0 Hz 1Z	TPL 400.0 Hz 1Z

**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Interference			X			
Lack of Encryption						X
Lack of GPS						X
Radio Coverage			X			
No mounted radios in PA vehicles				X		

- 0 : No problem identified.
- 1 : Identified problem, currently not of concern. May become a concern in the future.
- 2 : Occasionally a problem, affects some operations but is generally worked around.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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- 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
- 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
- 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.

N/A: Not applicable or not answered.

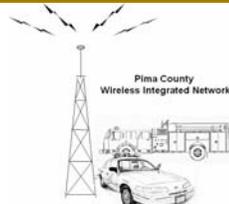
**Clarifications:**

[Redacted area with horizontal lines for clarifications]

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles <i>39</i>	<i>44</i> <i>5</i>	<i>49</i> <i>5</i>	<i>50</i> <i>1</i>	<i>55</i> <i>5</i>
Portables	<i>190</i>	<i>200</i>	<i>210</i>	<i>220</i>
Control Stations	<i>5</i>	<i>5</i>	<i>6</i>	<i>6</i>
Paging units				



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

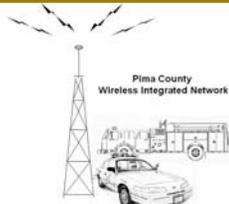
If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** The University of Arizona Police Department

**Contact Name:** Luis Puig                      **Position:** Operations Support Coordinator

**Phone:** 520 626-8256                      ✱ **Email:** lpuig@uapd.arizona.edu

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**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have 30 - 911 Data & 4 Panasonic Toughbook...MDT Software is "UCS" features Field Interview, Miscellaneous Index reports, CAD, text messaging, and ACIC/NCIC/RMS

Age: 5+ Condition: Fair Adequate: Meets our immediate needs

Mobile data functions that you currently have and use:

Computer Aided Dispatch: X Name of CAD system: Northrup Grumman

Access to Records Management: X Name of RMS system: Northrup Grumman

Records functions available: No

Field Reporting: No Automatic Vehicle Location (AVL): No

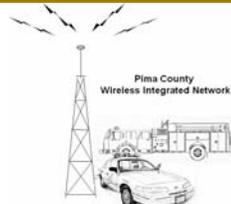
Email: No Outlook or web-based? No

Text Messaging:      Car to car: Yes Car to dispatch: Yes

Query (Person, Vehicle, Property, etc) Local: Yes State: Yes National : Yes

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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

System allows for officers to see call text information. Call text, at times, is in fragments, cutting full sentences and words distorting the message entered by dispatchers. Officers and dispatchers get used to it and are able to decipher the information.

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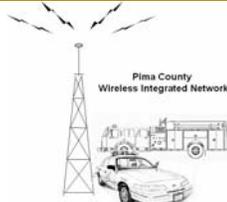
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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

Mobile data is essential for field personnel to maintain and retrieve pertinent call information on their MTCs Information we consider pertinent is Call details with suspect information and time elements, ACIC and NCIC entries (Warrants, Stolen Vehices-Guns-Articles etc), prior police contacts on individuals, and vehicle registration and driver's license status. Officers have an option of writing miscellaenous reports and field interviews on their MTCs allowing them to document basic and non-criminal field activity (Vandalism, public assist, 911 hangups, checkwelfares, etc.) Officers can request dispatch for additional types of information by using the instant text messages, and they can monitor call activity and unit status. Although screens need to be refreshed for the later, the exchange of information between officers, dispatchers and networks is vital to our operations.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

DESIRED UPGRADES: AVL, Access to MUG shots, MVD drivers license pictures available through Southwest Border Station - ACJIS, MTC web, mapping, automated field report writing.

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

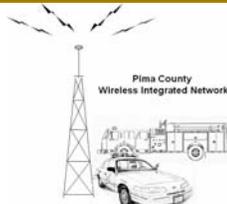
Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	29				
Wireless Handhelds (PDA's)					
AVL equipped					
Digital Pagers					





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

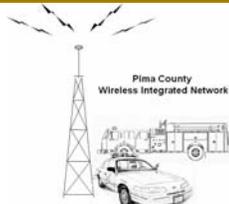
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If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



#### 4. Computer Systems Checklist – Law Enforcement Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Law Enforcement Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Law Enforcement Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. The NFPA 1221 provisions have been adopted by the Commission on Accreditation for Law Enforcement Agencies (CALEA) for CAD systems. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

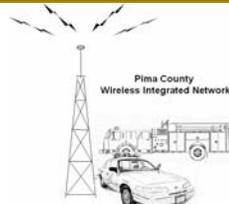
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.

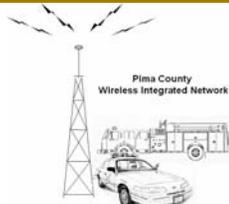


**Law Enforcement Department Checklist**

- 1) Department Name The University of Arizona
- 2) Contact Name Luis Puig
- 3) Contact Telephone Number (520) 626-8256
- 4) Primary Response Area UofA main campus in Tucson, Arizona and contiguous area  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
Current 99 5 Year Growth 110
- 6) Number of Uniform vehicles  
Current 15 5 Year Growth 20
- 7) Number of Detective and radio equipped administrative vehicles  
Current 16 5 Year Growth 21
- 8) Number and description of specialized vehicles (such as SWAT, Command, Crime Scene, etc.)  
Description 1 Mobile Command Post and 1 Police Escort Van  
Current 2 5 Year Growth 0  
Description Police Aide Trucks  
Current 6 5 Year Growth 10



- Description Motorycles
- Current 8 5 Year Growth 10
- 9) Number of stations or precincts
- Current 2 5 Year Growth 0
- 10) Number of response zones or beats
- Current 2 5 Year Growth 0
- 11) Number of dispatched calls per year
- Current 13087 5 Year Growth 15000
- 12) Number of traffic stops per year
- Current 2194 5 Year Growth 3000
- 13) Number of on-view or officer initiated calls per year
- Current Unable to obtain figures from CAD/RMS 5 Year Growth \_\_\_\_\_
- 14) Number of Other calls requiring a unit (education, assist motorist, standby, etc.)
- Current Unable to obtain figures from CAD/RMS 5 Year Growth \_\_\_\_\_
- 15) Number of calls (included above) that are out of your zone.
- Current 1155 5 Year Growth 2000
- 16) Number of calls (included above) that are out of Pima County.
- Current 218 5 Year Growth 230
- 17) Number of calls (included above ) that are out of Arizona.



Current N/A 5 Year Growth \_\_\_\_\_

- 18) Number of arrests per year (other than traffic citations)

Current 782 5 Year Growth 825

- 19) Number of ACIC/NCIC requests

Current 72,000 5 Year Growth 85,000

- 21) Number of case report numbers issued per year.

Current 13,087 5 Year Growth 15000

- 22) Number of Mobile Data terminals

Current 29 5 Year Growth 34

- 23) Number of station computers or others that would log-on to the network

Current 18 5 Year Growth 25

- 24) Number of personnel that would require an individual log-on password

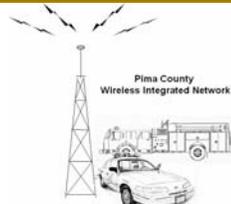
Current 92 5 Year Growth 102

- 25) Highest typical number of officers than are on duty.

Current 25 (dayshift) 5 Year Growth 30

Includes non-commissioned officers (i.e. Police Aides and Community Service Officers)

**Provisions of NFPA 1221 and CALEA**



#### Annex D Computer-Aided Dispatching (CAD) Systems

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

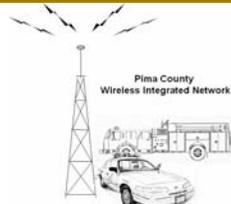
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

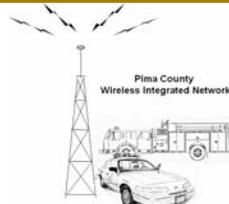
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

**D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



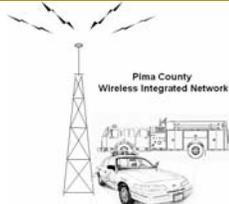
**Pima County, Arizona  
Wireless Integrated Network (PCWIN)**

**March 14, 2006**

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

- Mobile Command Post Radio Frequencies
- Law Enforcement Frequency bands
- Campus map
- Coplink project

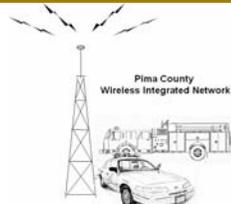
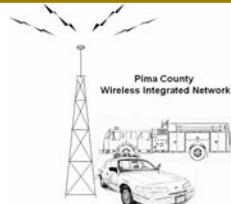


TABLE 2.1.20A Existing Interoperability

Agency Types	Agency Types	Agency Types
University of Arizona Police	University of Arizona Police	University of Arizona Police
Ajo/Gibson Vol. FD		Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD		Customs and Border Protection
Avra Valley Fire District		Drug Enforcement Administration
Corona de Tucson Fire District		Emergency Man. & Homeland Security
Drexel Heights Fire District	Marana PD	Federal Bureau of Investigation
Elephant Head Vol. FD	Oro Valley PD	Immigration and Customs Enforcement
Golder Ranch Fire District	Pascua Yaqui PD	National Park Service
Green Valley Fire District	Pima College Dept. of Public Safety	Bureau of Land Management
Helmet Peak Fire District	Pima County OEM & Homeland Security	U.S. Fish & Wildlife
Mt. Lemmon Fire District	X Pima County Sheriff's Dept.	U.S. Forest Service
Northwest Fire District	Pima County Sheriff's Dept. - Ajo	U.S. Marshals Service
Pascua Pueblo FD	Sahuarita PD	Arizona Dept. of Public Safety
Picture Rocks Fire District	South Tucson PD	Arizona Game and Fish
Rincon Valley Fire District	Tohono O'odham Tribal Police	
Rural Metro Fire/Southwest Ambulance	Tucson Airport Authority PD	
South Tucson FD	X Tucson PD	
Three Points FD	University of Arizona Police	
Tohono O' odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		



Agency Types	University of Arizona Police
	Ajo/Gibson Vol. FD
	Arivaca Vol. FD
	Avra Valley Fire District
	Corona de Tucson Fire District
	Drexel Heights Fire District
	Elephant Head Vol. FD
	Golder Ranch Fire District
	Green Valley Fire District
	Helmet Peak Fire District
	Mt. Lemmon Fire District
	Northwest Fire District
	Pascua Pueblo FD
	Picture Rocks Fire District
	Rincon Valley Fire District
	Rural Metro Southwest Ambulance
	South Tucson FD
	Three Points FD
	Tohono O'odham FD
	Tucson Airport Authority FD
	Tucson FD
	Ajo Ambulance
	Why Fire District

Fire Agencies

Agency Types	University of Arizona Police
	Marana PD
	Oro Valley PD
	Pascua Yaqui PD
	Pima College Dept. of Public Safety
	Pima County OEM & Homeland Security
	Pima County Sheriff's Dept.
	Pima County Sheriff's Dept. - Ajo
	Sahuarita PD
	South Tucson PD
	Tohono O'odham Tribal Police
	Tucson Airport Authority
	Tucson PD
	University of Arizona Police

Police and Emergency Services Agencies

Agency Types	University of Arizona Police
	Bureau of Alcohol, Tobacco, Firearms & Explosives
	Customs and Border Protection
	Drug Enforcement Administration
	Emergency Man. & Homeland Security
	Federal Bureau of Investigation
	Immigration and Customs Enforcement
	National Park Service
	Bureau of Land Management
	U.S. Fish & Wildlife
	U.S. Forest Service
	U.S. Marshals Service
	Arizona Dept. of Public Safety
	Arizona Game and Fish

Federal Agencies

Agencies

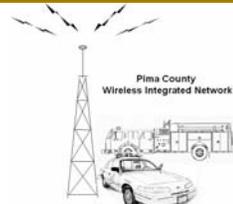


TABLE 2.1.20C  
 University of Arizona Police

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	4.0	Important for officers who have take-home cars
2	Improved Voice Radio Coverage – Central County	5.0	Imperative for daily operations
3	Improved Voice Radio Coverage – Western County	4.0	Important for officers who have take-home cars
4	In-building Coverage	5.0	Imperative for daily operations
5	Minimize Local Interference	5.0	Imperative for daily operations
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	5.0	Imperative for special events (Athletics, Spring Fling, etc)
7	On-scene Fire Channels	5.0	Imperative for interoperability with TFD
8	Monitored Firegrounds		
9	Emergency Alerting	5.0	Imperative for incidents crossing boundaries
10	Workgroup Oriented Operation	5.0	Imperative for special events (Athletics, Spring Fling, etc)
11	Voice Security	4.0	Helpful with special operations and media control
12	Operational Boundary Transparency	4.0	
13	One System Serves All Agencies	3.0	One central area for repairs and redundancy
14	Interoperability through Dispatch	3.0	Improved Communications with dispatch centers
15	Interoperability with Adjacent Counties	3.0	Improved communications with adjacent counties
16	Interoperability with State Agencies	3.0	Agencies who receive help from DPS would benefit
17	Interoperability with Federal Agencies	3.0	Agencies who receive help from Fed Agencies would benefit
18	Person Location	5.0	
19	System Control	3.0	
20	Recorded Operations	3.0	
21	Simplified User Operations	3.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	4.0	
23	Dispatch Capacity	4.0	
24	Dispatch Coverage	4.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	3.0	
26	Cross CAD Interconnection	3.0	
27	Mobile Data Criticality	3.0	
28	Vehicle Location	5.0	
29	EMS Telemetry	5.0	
30	High-Speed Broadband Service	5.0	
31	Mobile Applications	3.0	
32	Advanced Mobile Applications	3.0	
33	Access County Information	3.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	3.0	
35	Fire Station Alerting	0.0	
36	Paging over Cellular	3.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	3.0	
38	Owner-Controlled Backbone	3.0	
39	Microwave Connectivity	3.0	
40	Microwave Additional Capacity	3.0	
41	Regional Connectivity	3.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	5.0	

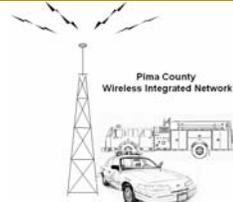
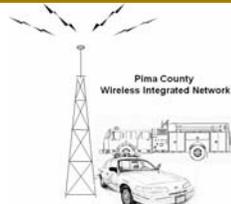


TABLE 2.1.20C  
 University of Arizona Police

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Training and Maintenance</b>			
46	Staffing and Training	5.0	
47	Centralized Maintenance	5.0	
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	3.0	
49	Commonality of Equipment	3.0	
50	Multiple Sources	3.0	
51	Phased Implementation	4.0	
52	Tiered Subscriber Cost	3.0	
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



### 2.1.21 Why Fire District and Ajo-Gibson Volunteer Fire Department

#### A. Current Environment

##### 1. Operational

The Ajo/Gibson Volunteer Fire Department is dispatched from the Sheriff's office and work closely with Why Fire Department. Ajo/Gibson Fire has their own VHF repeater channel located on Consentrator Hill. Radio coverage is reportedly good.

A private ambulance service was started in Ajo in 1989 and is dispatched from the Ajo PCSD sub-station. Repeaters are located on Child's Mountain and Quijotoa Mountain. Ambulance has 10 units and runs about 3000 calls per year. Much of the Ambulance service business is on the Tohono O'odham Nation.

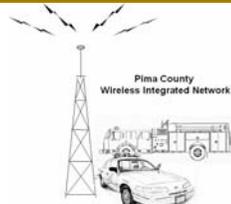
##### 2. Functional

The primary service area for both Why and Ajo/Gibson FD's are the populated areas along state route 85 and a small distance east into the reservation. Fire experiences RF coverage problems in several spots along Rt 85 south of Ajo.

##### 3. Technical

Ajo/Gibson Fire has their own VHF repeater channel located on Consentrator Hill. Radio coverage is reportedly good.

Why Fire has their own repeated radio frequency (at Why water tank), 8 mobiles in Fire vehicles, 2 mobile in personal vehicles, and no pagers. Why Fire Department is also dispatched by the Sheriff's Ajo District. Fire personnel have access to 7 or 8 other VHF channels.



Fire uses tone/voice pagers transmitted on F3 using a Zetron paging encoder. Motorola Keynote pagers are preferred over the more expensive Monitor models.

4. Interoperability

TABLE 2.1.21A shows the existing direct interoperability capabilities with other agencies for the department. Ajo ambulance is able to talk to Sheriff (through Sheriff's VHF radio) and all other VHF users in western Pima County. They are not able to talk to Border Patrol, Customs, or DPS.

B. Positive Attributes of Current Environment

1. Operational

A high level of resource sharing and cooperation between County, State and Federal resources in this region.

2. Functional

Why FD experiences good coverage from their repeater on the utility water tank in Why.

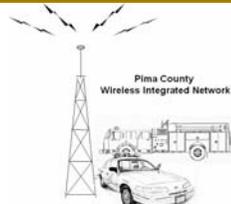
3. Technical

Why water tank or possibly the undeveloped (but higher) hilltop near the tank should be considered as possible site locations.

C. Desired Attributes of Current and Future Environment

1. Operational

Ideally, western county agencies would have the same quick and easy access via common talkgroups to the Federal agencies they need to talk to everyday.



However, Public Safety is generally not permitted to key radios on Federal channels even if their radio were capable due to same-band operation. The solution to bridging the local-federal communications gap will have to take the form of technology capable of linking channels or talkgroups.

Fire's goal is to have sufficient quantities of radios to issue portables to all personnel. The selected model needs good connectivity to SCBA devices.

2. Functional

Ajo/Gibson desires that their dispatch operation be integrated with CAD which would enable the CAD information to be transmitted to a few Fire vehicle mobile data units. Note, that Ajo Sheriff also wants mobile data. Alltel and Cingular service is available in the area.

3. Technical

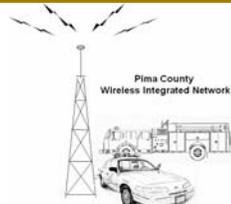
Fire, EMS and Sheriff in western Pima County need a single radio system that offers segregated operations (separate talkgroups). On a routine basis they need quick and easy access to common talkgroups on the same system when working an incident together.

4. Interoperability Matrix

TABLE 2.1.21B shows the future direct interoperability capabilities with other agencies for the department.

5. Attributes Matrix

Please refer to TABLE 2.1.21C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Sherriff's Department at Ajo

File Name: 030206 Sheriff Ajo Final.doc

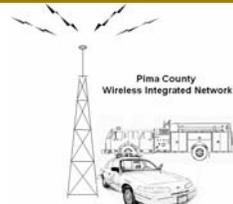
Date of Interview: March 2, 2006

Location of Interview: Ajo Sheriff's Office

Persons Interviewed: Lt. Bill Clements, Commander Ajo  
Kerry Reeve, PCOEMHS  
Lonnie Guthrie, Chief Ajo Ambulance  
Jana Moe, Park Ranger  
Greg Kaufmann, Captain Ajo Ambulance  
J.D. Allen, PIO Ajo Fire Dept.  
Alex J. Harper, SBPA  
Richard Walker, F.S./Comm/Races  
Vern Denning, Why FD Chief  
Eric Davies, Deputy Area Manager, Arizona  
Kenneth Carpenter, Field Tech Officer, DHS, Ajo Station  
Larry Sayers, Radio Communications Manager  
Captain Paul Wilson, Pima County Sheriff's Dept

Interviewees represented a collection of public safety agencies operating in Western Pima County. These included the Pima County Sheriff's Department, Ajo-Gibson and Why Fire Departments, U.S. Parks Service, Border Patrol, and Pima County Office of Emergency Management.

CTA Interviewers: David Anderson, CTA Senior Systems Engineer



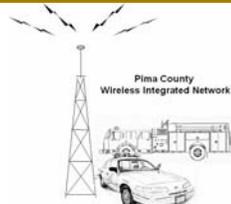
The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. The Ajo PCSD sub-station dispatched 2130 calls for service in 2005, plus responded to 5364 self initiated calls. Ambulance service was involved in 358 of the calls.

Present Situation

1. A private ambulance service was started in Ajo in 1989 and is dispatched from the Ajo PCSD sub-station. Repeaters are located on Child's Mountain and Quijotoa Mountain. Ambulance has 10 units and runs about 3000 calls per year. Much of the Ambulance service business is on the Tohono O'odham Nation.
2. The Sheriff's Office communicates on trunked 800 MHz radio repeated from Child's Mountain. The dispatch center is equipped with EFJ Tracer consoles. Local, State and Federal VHF and UHF channels are routed into dispatch allowing patch between Sheriff and other agencies as needed. Sheriff's Office covers 5000 square miles with 17 (14 deputies & 3 sergeants) units.
3. Fire and Ambulance VHF users are able to talk to other VHF users, but not the Federal agencies or State DPS (different part of the VHF band).
4. The Ajo/Gibson Volunteer Fire Department is dispatched from the Sheriff's office on their own single repeated VHF channel. They work closely with Why Fire Department. Fire personnel have access to 7 or 8 other VHF channels. Fire uses tone/voice pagers transmitted on F3 using a Zetron paging encoder. Motorola Keynote pagers are preferred over the more expensive Monitor models.
5. The Sheriff's office and Border Patrol currently exchange radios when working an incident together. Sheriff would like to link to federal bands using a mobile ACU 1000-type linking device.
6. Why Fire has their own repeated radio frequency (at Why water tank), 8 mobiles in Fire vehicles, 2 mobile in personal vehicles, and no pagers. Why Fire Department is also dispatched by the Sheriff's Ajo District.
7. The Park Service in Organ Pipe sometimes gets involved in law enforcement activities and needs to be able to be able to communicate with County and Federal agencies.



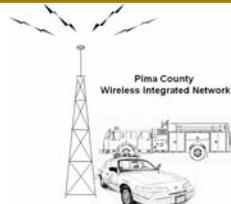
Park Service is painfully transitioning to their mandated new P25 radios. They are currently allowed to operate in both analog and digital modes during the transition. Ultimately their operation will be all-digital encrypted.

Present Problems

1. Fire experiences RF coverage problems in several spots along Rt 85 south of Ajo.
2. F3, the paging channel experiences interference (or bleedover) from Mexico. Pima uses F3 as a repeated channel (2 frequencies). Smugglers often use one of the frequencies in simplex mode causing interference for Pima.
3. SO currently needs and uses encrypted communications. Today's analog encryption requires frequent "adjustment" to keep it operating at full performance.
4. SO does experience a few interference problems on 800 MHz, they guess due to close frequency reuse of the same frequencies in eastern Pima County.
5. From a new system design standpoint, we were told that leased landlines connecting Ajo to the outside world can be unreliable, especially during severe weather.
6. Ajo PCSD sub-station dispatch needs to be able to patch to the DPS channels.

Future Requirements

1. Why water tank is a good potential site location.
2. Fire's goal is to issue portables to all personnel. The selected model needs good connectivity to SCBA devices.
3. PCSD in Ajo wants to become a participant in the County mobile data system.
4. PCSD and the fire departments need to operate on the same radio band and use gateway devices to link to other bands such as UHF for DPS and the Federal VHF bands.
5. Because of the high level resource sharing and cooperation between County, State and Federal resources in this region, a new regional radio concept must emphasize easy intercommunication between all agencies.



The draft of this record was sent to Captain Paul Wilson on April 4, 2006.

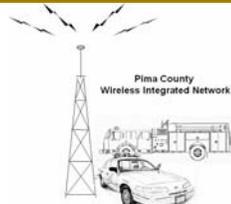
Corrected draft was returned to CTA Communications on April 7, 2006.

**Interviewee Name & Address:**

Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

Reviewed and corrected on 4/6/06 Captain Paul Wilson

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\030206 Sheriff Ajo  
FINAL.doc



2. Radio Usage Form

AJO GIBSON FD - RADIO  
UP

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** Ajo Gibson Vol. Fire

**Contact Name:** JD Allen      **Position:** Firefighter / PIO

**Phone:** 602 290 5834      **Email:** agfd53@hotmail.com

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Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

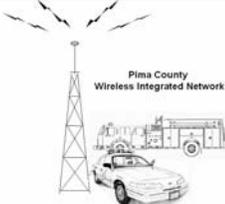
**I: RADIO UTILIZATION CURRENT SITUATION**

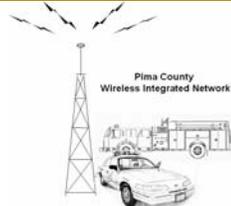
a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

---

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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	6				
Portables	19				
Control Stations	0				
Paging units	13				
Other Devices	0				

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

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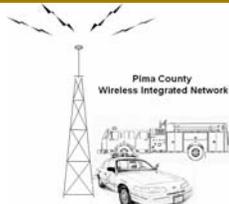
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c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	0	
Water Tender	0	
Pumper/ Engine	3	YES
Ladder Truck	0	
Ambulance	0	
Patrol Vehicles	0	



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

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Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks	2	YES
Highway Maintenance		
Vans		
Buses		
Cars		
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

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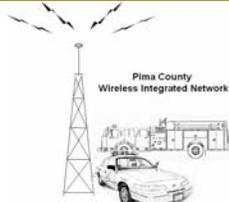
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d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

e. Please list the talk-group or channel assignments for your radios.

Primary Talk groups or channel name	Other Talkgroups or channel name	Repeater or Simplex **	Surrounding city or county	Federal	Tribal
FIRE		SIMPLEX			
FIRE		REPEATER			
MUTUAL AID		SIMPLEX			
PCSD		REPEATER			
INTERAGENCY		SIMPLEX	STATE WIDE		
SELLS ICP		REPEATER			YES
QUITO TO A		REPEATER			YES
SELLS AJO		SIMPLEX			YES
BP CHILDS		REPEATER		YES	
BP AJO		REPEATER		YES	
NPS ORGAN		REPEATER		YES	
GILA BEND		REPEATER	GILA BEND		

\* Designate the frequency band if known in the appropriate box.  
 \*\* A repeater channel is a channel that utilizes a tower; a simplex channel communicates radio to radio without the benefit of a tower repeater.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**Clarifications:**

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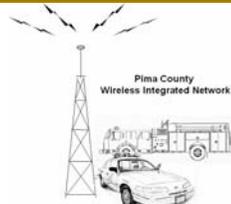


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**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
NEED INTEROPERABILITY COMMUNICATIONS						
W/ ALL AGENCIES IN AREA					✓	





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles				
Portables				
Control Stations				
Paging units				
Other Devices				

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

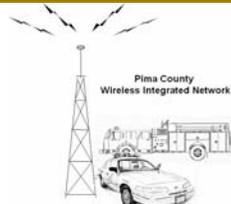
Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.                      Fax: (434) 239-9221  
 P.O. Box 4579                                      Phone: (434) 239-9200  
 Lynchburg, VA 24502-0579                      [PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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3. Mobile Data Survey

AJO GIBSON FD - MD

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

Organization/Agency Name: Ajo Gibson Vol. Fire Dept  
Contact Name: JD Allen / Captain Dave Tibbitt Position: \_\_\_\_\_  
Phone: 602/290-5834 Email: agfd53@hotmail.com  
602 399-9382

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**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have: None

Age: \_\_\_\_\_ Condition: \_\_\_\_\_ Adequate?: \_\_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: — JCSO Name of CAD system: \_\_\_\_\_

Access to Records Management: \_\_\_\_\_ Name of RMS system: \_\_\_\_\_

Records functions available: \_\_\_\_\_

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_\_

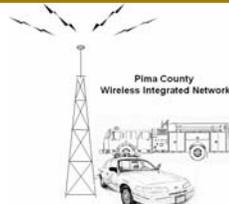
Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging: Car to car: \_\_\_\_\_ Car to dispatch: \_\_\_\_\_

Query (Person, Vehicle, Property, etc) Local: \_\_\_\_\_ State: \_\_\_\_\_ National: \_\_\_\_\_

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Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: \_\_\_\_\_

Other software: \_\_\_\_\_

Problems or concerns with your current capabilities:

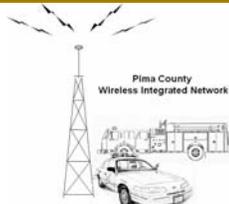
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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

Integrate with CAD  
would like ability to have / use PCSO mcd

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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): see PCSO

Commercial Service (Verizon, etc) : \_\_\_\_\_

Wi-Fi : \_\_\_\_\_

Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	Currently in service		USAGE		
	On Hand	Un-met Needs	Estimated Future Needs (use either number of units or % growth )		
			2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles					
Wireless Handhelds (PDA's)					
AVL equipped					
Digital Pagers					
Tone Voice Pagers	14	6	20	25	35
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	
Query (license checks, vehicle registrations, wanted persons, property checks)	
Car-to-car or car-to-dispatch message	
Status updates	



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Emails	
Field Report	
Other _____	
Other _____	
Other _____	

Any additional comments or questions you have regarding mobile data:

\_\_\_\_\_

\_\_\_\_\_

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[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\PCWIN Mobile Data Survey.doc



4. Computer Systems Checklist – Fire & EMS Departments

None.

5. Documentation Provided

- Ajo/Gibson Fire Rescue Frequency Bands
- Why Fire Summary of Current Communications System
- Fire Rescue Frequency bands
- Radio Location and Frequencies
- FCC WTB
- Law Enforcement Frequency Bands
- Why Fire Channelization Plan

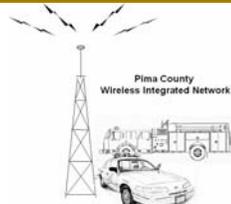


TABLE 2.1.21A Existing Interoperability

Agency Types Ajo/Gibson Vol. FD Why Fire District	Fire Agencies	Police and Emergency Services Agencies	Federal Agencies	State
	Ajo/Gibson Vol. FD		Bureau of Alcohol, Tobacco, Firearms & Explosives	
	Arivaca Vol. FD		Customs and Border Protection	
	Avra Valley Fire District		Drug Enforcement Administration	
	Corona de Tucson Fire District		Emergency Man. & Homeland Security	
	Drexel Heights Fire District	Marana PD	Federal Bureau of Investigation	
	Elephant Head Vol. FD	Oro Valley PD	Immigration and Customs Enforcement	
	Golder Ranch Fire District	Pascua Yaqui PD	National Park Service	
	Green Valley Fire District	Pima College Dept. of Public Safety	Bureau of Land Management	
	Helmet Peak Fire District	Pima County OEM & Homeland Security	U.S. Fish & Wildlife	
	Mt. Lemmon Fire District	Pima County Sheriff's Dept.	U.S. Forest Service	
	Northwest Fire District	Pima County Sheriff's Dept. - Ajo	U.S. Marshals Service	
	Pascua Pueblo FD	Sahuarita PD	Arizona Dept. of Public Safety	
	Picture Rocks Fire District	South Tucson PD	Arizona Game and Fish	
	Rincon Valley Fire District	Tohono O'odham Tribal Police		
	Rural Metro Fire/Southwest Ambulance	Tucson Airport Authority PD		
	South Tucson FD	Tucson PD		
	Three Points FD	University of Arizona Police		
	Tohono O'odham FD			
	Tucson Airport Authority FD			
	Tucson FD			
	Ajo Ambulance			
	Why Fire District			

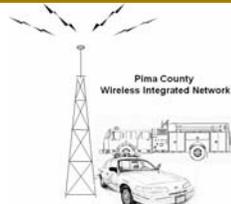
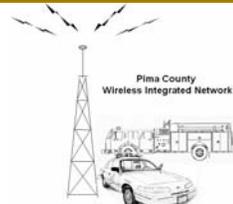


TABLE 2.1.21B Future Interoperability

Fire Agencies		Police and Emergency Services Agencies		Federal Agencies		Agencies	
Agency Types		Agency Types		Agency Types		Agency Types	
Ajo Ambulance		Ajo Ambulance		Ajo Ambulance		Ajo Ambulance	
Ajo/Gibson Vol. FD		Ajo/Gibson Vol. FD		Ajo/Gibson Vol. FD		Ajo/Gibson Vol. FD	
Why Fire District	X	Why Fire District		Why Fire District		Why Fire District	
Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives		Bureau of Alcohol, Tobacco, Firearms & Explosives	
Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection	X	Customs and Border Protection	
Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration		Drug Enforcement Administration	
Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security		Emergency Man. & Homeland Security	
Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation		Federal Bureau of Investigation	
Elephant Head Vol. FD		Pima County Sheriff's Dept.	X	Immigration and Customs Enforcement		Immigration and Customs Enforcement	
Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo	X	National Park Service	X	National Park Service	X
Green Valley Fire District		Sahuarita PD		Bureau of Land Management		Bureau of Land Management	
Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife		U.S. Fish & Wildlife	
Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service	X	U.S. Forest Service	X
Northwest Fire District		Tucson Airport Authority		U.S. Marshals Service		U.S. Marshals Service	
Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety	X	Arizona Dept. of Public Safety	X
Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish		Arizona Game and Fish	
Rincon Valley Fire District							
Rural Metro Southwest Ambulance	X						
South Tucson FD							
Three Points FD							
Tohono O'odham FD	X						
Tucson Airport Authority FD							
Tucson FD							
Ajo Ambulance							
Why Fire District	X						



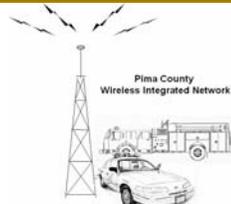
**TABLE 2.1.21C**  
**Why Fire District & Ajo/Gibson Volunteer Fire Department**

DESIGNATOR NO.	ATTRIBUTE	WHY FIRE DISTRICT	COMMENTS	AJO GIBSON VOL FIRE	COMMENTS
<b>Radio Coverage</b>					
1	Improved Voice Radio Coverage – Eastern County	0.0		0.0	
2	Improved Voice Radio Coverage – Central County	0.0		0.0	
3	Improved Voice Radio Coverage – Western County	5.0		5.0	
4	In-building Coverage	5.0		5.0	
5	Minimize Local Interference	5.0		5.0	
<b>Voice Radio Operations</b>					
6	Increased Channel Capacity	5.0		5.0	
7	On-scene Fire Channels	5.0		5.0	
8	Monitored Firegrounds	5.0		5.0	
9	Emergency Alerting	5.0		5.0	
10	Workgroup Oriented Operation	5.0		5.0	
11	Voice Security	3.0		3.0	
12	Operational Boundary Transparency	5.0		5.0	
13	One System Serves All Agencies	4.0		4.0	
14	Interoperability through Dispatch	5.0		5.0	
15	Interoperability with Adjacent Counties	5.0		5.0	
16	Interoperability with State Agencies	5.0		5.0	
17	Interoperability with Federal Agencies	5.0		5.0	
18	Person Location	5.0		5.0	
19	System Control	3.0		3.0	
20	Recorded Operations	4.0		4.0	
21	Simplified User Operations	4.0		4.0	
<b>Dispatch Operations</b>					
22	Increased Dispatch Channel Capacity	4.0		4.0	
23	Dispatch Capacity	4.0		4.0	
24	Dispatch Coverage	4.0		4.0	
<b>Mobile Data Functions</b>					
25	One Mobile Data Network Serves All Agencies	3.0		3.0	
26	Cross CAD Interconnection	0.0		0.0	
27	Mobile Data Criticality	3.0		3.0	
28	Vehicle Location	3.0		3.0	
29	EMS Telemetry	3.0		3.0	
30	High-Speed Broadband Service	2.0		2.0	
31	Mobile Applications	1.0		1.0	
32	Advanced Mobile Applications	1.0		1.0	
33	Access County Information	1.0		1.0	
<b>Paging and Alerting Operations</b>					
34	Private Personnel Paging	5.0		5.0	
35	Fire Station Alerting	5.0		5.0	
36	Paging over Cellular	3.0		3.0	
<b>Infrastructure Capabilities</b>					
37	Future Expansion	4.0		4.0	
38	Owner-Controlled Backbone	2.0		2.0	
39	Microwave Connectivity	1.0		1.0	
40	Microwave Additional Capacity	1.0		1.0	
41	Regional Connectivity	5.0		5.0	
<b>Reliability and Availability</b>					
42	Survivability	5.0		5.0	
43	Reliability/Failure Hierarchy	4.0		4.0	
44	Single Points of Failure	5.0		5.0	
45	Power Backup	4.0		4.0	
<b>Training and Maintenance</b>					
46	Staffing and Training	5.0		5.0	
47	Centralized Maintenance	4.0		4.0	



**TABLE 2.1.21C**  
**Why Fire District & Ajo/Gibson Volunteer Fire Department**

DESIGNATOR NO.	ATTRIBUTE	WHY FIRE DISTRICT	COMMENTS	AJO GIBSON VOL FIRE	COMMENTS
<b>Cost and Procurement</b>					
48	Competitive Procurement Process	4.0		4.0	
49	Commonality of Equipment	5.0		5.0	
50	Multiple Sources	1.0		1.0	
51	Phased Implementation	2.0		2.0	
52	Tiered Subscriber Cost	4.0		4.0	
<b>Ranking Scale:</b> 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.					



## 2.2 City of Tucson

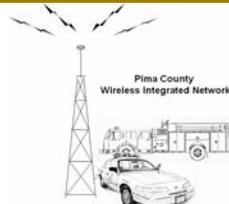
### 2.2.1 Tucson Fire Department

#### A. Current Environment

##### 1. Operational

The Tucson Fire Department (TFD) is responsible for fire fighting, HAZMAT (Hazardous Materials) spill response, and rescue services within the City of Tucson, Arizona. Emergency medical services and medical transport are also provided. Tucson Fire Department covers 219 square miles with the City limits of Tucson, employs 550 uniformed officers, and has 20 engines, 7 ladder trucks, and 20 fire houses. The operation responds to 66,000 calls per year. Approximately 86% of the call volume involves EMS. TFD provides this fire service on the campus of University of Arizona.

The overall organization involves two departments, the Tucson Fire Department and the General Services Department. The E-911 Director & Communications Director is organized under the General Services Department that owns and operates the dispatch center and radio system (infrastructure) for Tucson Fire Department. All fifty-four dispatchers and E-911 call takers for Tucson Fire Department are employees of the General Services Department. Fire fighters within the department are organized under Local 479, a worker's union. The Information Technology Department is part of the Fire Department organization and is responsible for computers, CAD (computer aided dispatch), radios, mobile data computers and related technology.



## 2. Functional

The current radio system infrastructure is old and worn out. Break-downs and repairs are occurring with more frequency in recent years.

Although it seems the Fire Department has plenty of channels, capacity seems to be a problem. People either step on each other's calls, or become frustrated waiting for their frequency to clear so they can make their call.

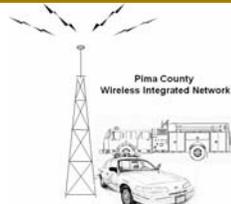
There are coverage problems (dead spots) in both the east and west areas of the City. Building penetration with the current radio system (from repeater sites) is certainly not reliable citywide. Fireground frequencies continue to be a critical tool for communications between fire fighters inside burning buildings because of this problem.

## 3. Technical

Tucson Fire Department (TFD) currently uses an analog conventional radio system in the UHF frequency band (450 MHz) for voice communications and an 800 MHz radio system for mobile data. Voice channels are repeated from a primary site at Catalina Street with a backup site at Swan Rd. TFD has five (5) monitored duplex channels:

- 1 Dispatch channel
- 2 Medical channels
- 1 Fire channel
- 1 Admin channel

In addition, the Fire Department has three simplex frequencies, which are used as "fireground" channels for on-scene communications. These are especially helpful for in-building portable coverage.



Units are equipped with the ambulance channel and dispatchers also monitor state fire & medical frequencies. Portable radios are passed from shift to shift (3 platoons). Inventory consists of mostly Motorola XTS 3000 and 5000 with some remaining older Sabers. Personnel on the street use shoulder mics. During fire service, radios are carried in a chest pocket. These radios have provided good service with easy-to-use knobs and controls. Each vehicle is equipped with a mobile.

The current mobile data system is an older Motorola RDLAP network running at 4800 bps that works with KDT mobile data terminals. Three channels in the 800 MHz band are currently being used to support the TFD mobile data system.

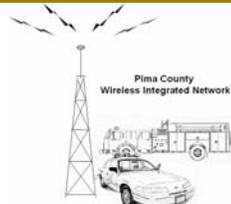
A new mobile data system using IP MobileNet equipment and laptop computers is being tested and installed. Northwest Fire is a partner in this initiative. The system will reuse the three current 800 MHz frequencies. New mobile data laptops are now being installed on the fire trucks.

Capabilities of the new mobile data system will include:

- Email
- Vehicle to vehicle and dispatch messaging
- Mapping
- Field reporting
- Hotspot technology for download of building plans

Tucson Fire has had an Automatic Vehicle Location (AVL) system in use for about 10 years now. The department is currently in the process of performing an upgrade.

TFD also utilizes “ERLink” – this is a mesh network in the downtown area only. It is used to provide a video feed from the back of an ambulance to the destination hospital.



Patient medical telemetry is done over a voice channel. EKGs are transmitted over cellular service.

Comtech (a vendor) is planning and implementing a new fire station alert system for TFD. This new system has not yet been installed or cutover.

Command level staff at TFD (e.g., assistant chiefs) carry digital pagers. The paging is done for the Fire Department by a commercial service provider (Verizon, Alltel). Pages can also be sent over the Internet but is slow.

#### 4. Interoperability

TABLE 2.1.1A shows the existing direct interoperability capabilities with other agencies for the department.

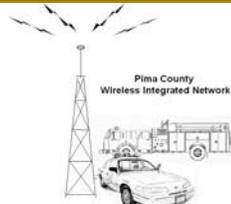
The Tucson Fire Department uses a gateway system that links channels in the UHF, VHF and 800 MHz bands together for interoperability in the local area.

TFD also has an ACU-1000 unit in one of its vans – this can be rapidly deployed to a fire scene for radio interoperability among fire fighters in a mutual aid scenario.

Tucson Fire Department has standing mutual aid agreements with surrounding jurisdictions and with state agencies.

Fort Huachuca in Cochise County can communicate with Tucson Fire using a system called “DICE” for interoperability in mutual aid situations.

TFD maintains a “rapid response team” for rescue and HAZMAT deployments anywhere in the state.



Interoperability with TPD is done through dispatch or directly using the Gateway channel.

TFR plans to install an ACU 1000 for radio interface to outside response teams:

- USAR – Federal Urban Search and Rescue
- RRT – Rapid Response Team (State)
- State Hazmat Team
- MMRS – Metropolitan Medical Response Team (Federal)

## B. Positive Attributes of Current Environment

### 1. Operational

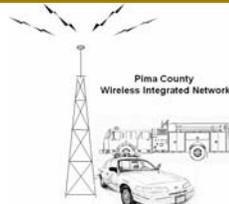
Many dispatch personnel mentioned management is very supportive and responds quickly to requests; however, many of the technical issues cannot be readily addressed.

### 2. Functional

Current UHF radio communications is simple and radios are relatively low-cost. Same-band interoperability is good with the fire and medical operations that Fire needs to talk to.

### 3. Technical

Despite the age of the equipment, the radio shop does an excellent job of fixing subscriber gear quickly and getting it back into the hands of fire fighters. Likewise, when there are problems with the radio network, the engineers and technicians react immediately and work to correct the issue as soon as can be expected. They have managed to keep the legacy radio system functional and reliable, despite the challenges.



C. Desired Attributes of Current and Future Environment

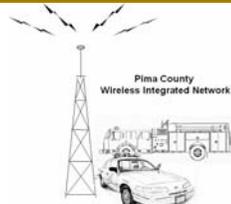
1. Operational

The next radio system must have adequate channel capacity to handle the increasing number of fire fighters in Tucson, and the future traffic load that they will generate.

The mobile data system must have adequate channel capacity. There is a concern about whether the 3 channels allocated (in the 800 MHz band) will be adequate for the future traffic generated by Tucson Fire.

Fireground safety is, and will continue to be, a major factor. Provisions for fireground frequencies, preferably “analog” mode, will have to be made for fire fighters. The instant access that these simplex (talk around mode) channels afford is critical for safety reasons.

Tucson Fire needs portable radios that are suited to their operations. Radios need to be equally adept at communicating enroute to an incident and in a small area while on-scene. Radios must easily connect to a wide variety of third party vendor accessories such as throat mics, helmet mics, and SCBA equipment. Radios should “lock” so that setting cannot accidentally get changed. Radios should have improved audio clarity and higher volume. Personal radio links such as Bluetooth would be welcomed for connecting radios to accessories. Some means of short range “open channel” voice communications would be useful allowing a small group to communicate intercom-fashion, but hands-free. Project 25 technology is attractive for interoperability. Emergency function and calling radio ID displayed at the consoles. Sufficient numbers of portables are needed, one for each seat on each truck.



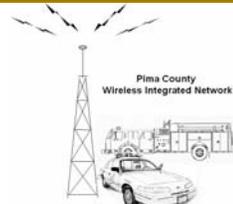
## 2. Functional & Technical

Reliable coverage throughout the official City limits is critical. TFD requires expanded coverage in the greater Tucson annexation areas and for communications during mutual aid situations. In the Tucson area, we observe a variety of building densities ranging from single story light wood construction through heavy concrete and steel multistory buildings. Any coverage design must consider the densities prevalent in various areas of the City.

Especially important is the in-building coverage to portable radios. Fire departments rely on simple, quick, and reliable communications once they are on-scene working an incident. One way to achieve on-scene communications is to establish simplex fireground frequencies in the same band as the radio infrastructure.

Tucson Fire desires the option for communications on fireground channels to be remotely monitored by, and recorded at the dispatch center. Improved in-band Vehicular Repeater Systems (VRS) have recently improved the ability to link fireground frequencies to the regional network, which in turn is linked to dispatch. A VRS mounted in one of the responding trucks receives the fireground channel and rebroadcasts the transmissions over the radio infrastructure which in turn is linked to dispatch for monitoring and recording. This allows two-way communications from a commander in dispatch. With appropriate RX/TX channel spacing, VRS systems can additionally function as local repeaters broadening the on-scene coverage area. The City of Phoenix is currently performing trial tests with these devices on their fire apparatus.

Procedurally, Fire must wait for Police to clear the scene. The order goes up through PD dispatch and then down through FD dispatch. Direct radio communications FD to PD on an on-scene group or channel would help for getting a quicker start on medical care.



Fire desires medical field reporting. This would avoid multiple data entry and be a productive use of waiting time. They would like to send patient care form wirelessly ahead of patient being transported. Currently patient data is entered three times. (Hand written notations during care delivery, then clean-up/fill in of notes, then typed report for the record)

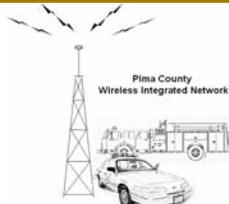
The State DHS (Department of Health Services) is implementing new standards for medical reporting. New systems, equipment/software for TFD should be in alignment with this program. The system will support barcodes or RFID tracking of patient and materials used.

Mobile data needs:

- In-vehicle mapping – eliminate map books
- Access to electronic reference cards
- Access to electronic standing order cards
- Access to prepared key building photographs – using system such as Pictometry
- Access to City floor plans – (City has been requiring creation of these for four years)
- Downloadable GIS files (at hotspot locations)
- Internet access for certain vehicles

Portable radio characteristics:

- Simple operation
- “Lock” function so settings don’t get accidentally changed
- Improved high volume levels
- Compatibility with the third party market of fire radio accessories
- Open to any new Bluetooth linked accessories to eliminate wires



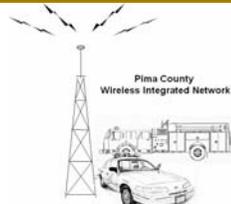
- No keypad (and few controls) are desirable on most radios
- Controls easy to “operate by feel”
- Multiple vendor purchasing and P25 interoperability is attractive

3. Interoperability Matrix

TABLE 2.2.1B shows the future direct interoperability requirements with other agencies for the department.

4. Attributes Matrix

Please refer to TABLE 2.2.1C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Tucson Fire Department

File Name: TucsonFireDepartmentUsersIFINAL.doc

Date of Interview: March 1, 2006

Location of Interview: Tucson Fire Department  
265 S. Church St.  
Tucson, AZ

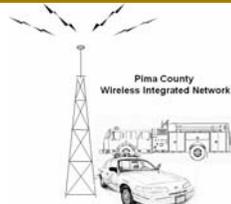
Persons Interviewed: Ray Allen, Tucson Fire, Assistant Chief  
Tom Matthew, Tucson Fire Captain  
Jim Grimes, Tucson Fire Captain  
Richard Johnson, Tucson Fire Captain  
Ron Lopez, Tucson Fire Battalion Chief  
Joe Jakoby, C.O.T. Information Technology  
Anita Velasco, City Communications  
Carl Drescher, Information Technology  
John Crosby, City Information Technology  
Yvonne Morken, Tucson Fire, I.T. Manager  
Paul Wilson, Captain Sheriff's Department

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. This is the first in a series of three interviews with TFD radio users. Represented in this interview are suppression units, engines and ladders.

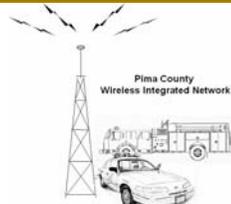


Present Situation

1. The mobile data system currently in use is the older Motorola KDT system. Functions include:
  - Incident address
  - Cross street
  - One-line incident description
  - Page number reference map books
  - Status
2. Rural Metro/Southwest Ambulance is the private, for-profit fire and medical company that responds in areas not covered by another city or county fire department Southwest Ambulance provides BLS transports under contract with the City, while Tucson Fire provides ALS transports.. Fire can directly talk with Southwest on a common radio channel.
3. Tucson Fire experiences 6 – 7% call load growth per year. More than 200 people per month take up residence in Tucson.
4. A new firehouse alerting system is currently being installed that ramps up the tones, supports more control points, and supports main and backup links (RF link and landline) from dispatch. The manufacturer is Comtech out of Sacramento.
5. The department currently relies on digital paging carried by local commercial carriers (Verizon, Alltel). (No mention of system delay problems.) Fire has about 8 paging groups defined. The system sends 80 character text messages and can send supplementary incident information. Pages can also be sent over the Internet but this slow.

Present Problems

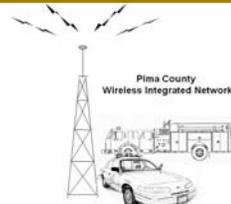
1. Procedurally on calls of a violent nature, Fire must wait for Police to secure the scene prior to entering. A more expedient method of advising TFD that a scene is secure would improve their response. Currently a TPD field unit must advise their dispatch. TPD dispatch notified the TFD dispatcher by phone. A possible solution may to provide priority CAD messaging between the two dispatch centers.



2. Fire has control of, and uses the Gateway channel (cross connect of VHF, UHF, and 800 MHz). The system is tested weekly. Access delay is a complaint, but the gateway concept basically works.
3. In-building radio coverage is a significant a problem.

Future Requirements

1. Fire desires medical field reporting. This would avoid multiple data entry and be a productive use of waiting time. Fire would like to send patient care form wirelessly ahead of patient being transported. Currently patient data is entered three times. (Hand written notations during care delivery, then clean-up/fill in of notes, then typed report for the record.)
2. Fire needs location information of other responding units to display on vehicle map.
3. Mobile data needs:
  - In-vehicle mapping – eliminate map books
  - Access to electronic reference cards
  - Access to electronic standing order cards
  - Access to prepared key building photographs – using system such as Pictometry
  - Access to City floor plans – (City has been requiring creation of these for four years)
  - Downloadable GIS files (at hotspot locations)
  - Internet access for certain vehicles
4. Portable radio characteristics:
  - Simple operation
  - “Lock” function so settings don’t get accidentally changed
  - Improved high volume levels
  - Compatibility with the third party market of fire radio accessories
  - Open to any new Bluetooth linked accessories to eliminate wires
  - No keypad (and few controls) are desirable on most radios
  - Controls easy to “operate by feel”
  - Multiple vendor purchasing and P25 interoperability is attractive



5. Fireground frequencies:
  - Sufficient quantities of licensed frequencies for large and multiple incidents
  - Quick, clear, reliable operation
6. Need more portable radios, one for each seat on each truck. Currently the department has about of the needed number. (Ray Allen offered to provide "seat count" numbers.)
7. The State DHS (Department of Health Services) is implementing new standards for medical reporting. New systems, equipment/software should be in alignment with this program. The system will support barcodes or RFID tracking of patient and materials used.
8. Currently, medical units communicate with area hospitals on a UHF channel. Despite the frequencies used by the hospitals or for TFD in the new system, TFD only wants to carry one radio.

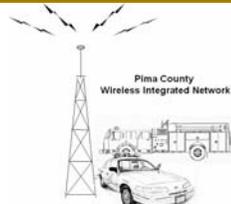
The draft of this record was sent to Captain Paul Wilson on April 3, 2006.

Corrected draft was returned to CTA Communications on May 12, 2006.

**Interviewee Name & Address:**

Captain Paul Wilson, PCSO  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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Planning\interview\Final\TucsonFireDepartmentUsers1FINAL.doc



CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Tucson Fire Department

File Name: TucsonFireDepartmentUsers2FINAL.doc

Date of Interview: March 1, 2006

Location of Interview: Tucson Fire Department  
265 S. Church St  
Tucson, AZ

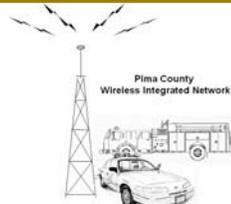
Persons Interviewed: Daniel Burke, Tucson Fire, Captain  
Jennifer LaCoss, Tucson Fire, Fire Fighter  
Richard Maller, Tucson Fire, Paramedic  
Roland Spangle, Tucson Fire, Engineer  
Christine O'Connor, C.O.T. Information Technology  
Dave Jones, C.O.T. Communications Coordinator  
Andrew Pashos, Tucson Fire, Paramedic  
Jim Merten, Tucson, Dept of General Services, Comm. Div  
Dave Jones, C.O.T. Communications Coordinator  
Joe Jakoby, C.O.T. Information Technology  
Anita Velasco, City Communications  
Yvonne Morken, Tucson Fire, I.T. Manager  
Paul Wilson, Captain Sheriff's Department

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. This is the second in a series of three interviews with TFD radio users. Represented in this interview are the Hazmat Teams. Two teams, east and west, provide faster response times citywide.



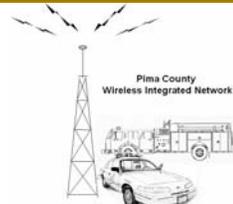
2. Specialized training is required of the Tucson Hazmat teams to be prepared for local special situations: the nuclear reactor at University of Arizona, the Air Force Base, and hazardous waste transported by rail.

Present Situation

1. Due to the full coverage hazmat suits, radio controls must be particularly easy to operate by feel, and hard to accidentally change. Special speaker and mic accessories are frequently used. The old Motorola Saber 1E has a special port to accommodate a favorite accessory unit. Selection of new radios should consider accessory compatibility.
2. After arriving on-site, the team first attempts to communicate on-scene using their repeated channel. If in-building coverage is poor, they switch to a simplex. The team is reluctant to switch channels once underway for fear of losing someone.
3. Interagency communications, as it is done today through dispatch, is satisfactory. The gateway channel is rarely used.
4. Communication to the hospitals is accomplished using the primary UHF radio patched to a hospital channel. The procedure is to request a talk channel using the Meds Control channel. The dispatcher waits for a clear talk channel, sets up the patch and radios back the channel assignment. Hazmat (or Fire) then uses the channel for the somewhat lengthy medical call. When finished, the dispatcher breaks the patch. The bottleneck in this system is the hospital call desk where personnel are busy with many other tasks besides answering radio. With new system, contact with the hospitals should be incorporated into the system so that TFD units are able to carry one radio no matter what frequencies are used at the hospital.
5. EMS has new Kontron laptops running on the old RDLAP network with ADSI software that emulates the old KDT terminals. This allows Tx Messenger messaging between old and new units. The longer term plan is to move to the new IP MobileNet system.

Present Problems

1. Acoustic feedback with speaker/mic accessories.
2. It is critically important to set up radios and have them stay set. A problem now is radio setting accidentally changing (ABC switch, volume, channel, etc.)



Future Requirements

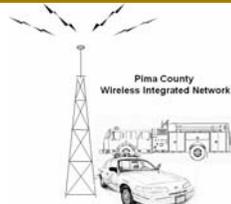
1. Portable radio needs:
  - Compatibility with a large PTT button accessory worn inside the suite but operated from the outside
  - Interested in any hands-free or wireless radio accessories
  - Rugged accessory connectors to withstand many connects/disconnects
2. Would like the same make and model of radio for everyone so that common accessories, batteries, and chargers may be used.
3. Loud, clear speaker volume.
4. Very reliable in-building coverage using simplex channels or other means. It is not necessary for dispatch to monitor or record the simplex channels for the hazmat entry team.
5. Mobile data needs:
  - Access to apartment guides online
  - Online building plans – University of Arizona in particular
  - CAD dispatch of incident information, and updates showing location and status of additional response teams
  - Access to command sheets and process check sheets
  - The ability to easily maintain building plan databases on the laptops
6. Need additional portable radios, ultimately one per seat in the fleet.

The draft of this record was sent to Captain Paul Wilson on April 3, 2006.

Corrected draft was returned to CTA Communications on May 12, 2006.

Interviewee Name & Address:  
Captain Paul Wilson, PCSO  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Tucson Fire Department

File Name: TucsonFireDepartmentUsers3FINAL.doc

Date of Interview: March 1, 2006

Location of Interview: Tucson Fire Department  
265 S. Church St  
Tucson, AZ

Persons Interviewed: Brian Stevens, Tucson Fire, Captain  
Arned Hernandez, Tucson Fire, Paramedic  
Jon Black, Tucson Fire, Medic  
John Crosby, City Information Technology  
Paul Wilson, Captain Sheriff's Department

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

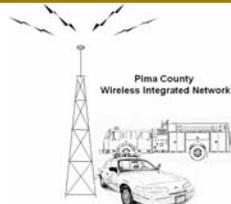
The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. This is the third in a series of three interviews with TFD radio users. Represented in this interview is the Technical Rescue Team from Station 10, paramedics, and information technology.

Present Situation

1. There is not a large need to talk to other agencies. The Gateway is available but rarely used. Currently, the agencies that Fire needs to communicate with have same-band radios. Intercommunications are generally reserved for command-level personnel.
2. As a side note during this interview, it was mentioned that the city is implementing or planning to implement video feeds at major traffic intersections.



Video from an ambulance can be viewed at the hospital allowing the hospital to be better prepared to handle the situation. The network is reportedly based on mesh technology from Tropos.

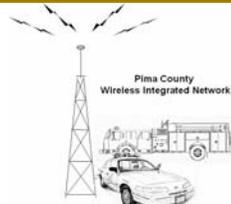
3. The group currently has new mobile data laptops. Capability includes car-to-car and car-to-dispatch messaging. Field medical reports are currently handwritten. They are typically retyped twice before becoming finalized. Of the available methods for creation of field medical reports, dictation is the method medics prefer.
4. EKGs are transmitted via cellular. The EKG machine stores the data patient-side for later transmission from a cell phone at the truck.
5. HIPPA requirements are met by simply not mentioning patient name over the air. Medics say that for their purposes to advise the hospital on patient conditions there is never a reason to identify the person.

#### Present Problems

1. Coverage problems: outdoors on prison and jail properties , in-building in the jail and prisons, Kino Hospital basement, and at various locations in all the hospitals.
2. Higher powered mobile radios are preferred over portables while in vehicles. The mic is often handed back to the rear compartment. Mobile radio speaker sound quality is preferred to portable.
3. Because of existing radio coverage problems, understanding what channels work in which locations requires both training and experience.

#### Future Requirements

1. Portable radio requirements:
  - Lighted controls
  - Compatibility with any hands-free accessories
  - Good tactile features to the controls
  - Secure portable belt clips or holsters to avoid loss of radio
  - The ability to scan multiple talkgroups/channels
  - Reliable emergency button and function
  - Use of speaker mics



2. Desire a “lifeline” type always on intercom type system for short-range communications within the workgroup.
3. Enough portable radio to issue one per person.

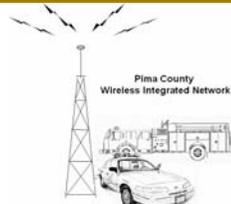
The draft of this record was sent to Captain Paul Wilson on April 3, 2006.

Corrected draft was returned to CTA Communications on May 12, 2006.

**Interviewee Name & Address:**

Captain Paul Wilson, PCSO  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Tucson Fire Department Management

File Name: TucsonFireDepartmentMgmtFINAL.doc

Date of Interview: February 28, 2006

Location of Interview: Tucson Fire Department  
265 S. Church St.  
Tucson, AZ

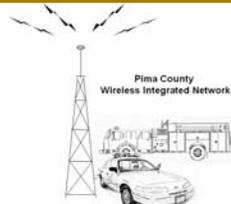
Persons Interviewed: Fred Bair, Tucson Fire Captain  
Mike Rodrigez, Tucson Fire Captain  
Ray Allen, Tucson Fire, Assistant Chief  
Anita Velasco, City Communications  
Joe Jakoby, C.O.T. Information Technology  
Jim Merten, Tucson, Dept of General Services, Comm. Div  
Dave Jones, C.O.T. Communications Coordinator  
Carl Drescher, Information Technology  
Yvonne Morken, Tucson Fire, I.T. Manager  
Ken Ramsden, Tucson Fire Captain  
Luke Adams, Tucson Fire Captain  
Todd Pearson, Tucson Fire Battalion Chief  
Mike Sacco, Lieutenant Sheriff's Department  
Paul Wilson, Captain Sheriff's Department

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

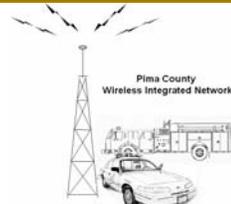
1. Tucson Fire Department (TFD) covers 228 square miles, employs 550 uniformed officers, and has 21 engines, 7 ladder trucks, 17 medical/ambulances, and 20 fire houses.



2. The unionized operation responds to 77,644 calls per year. Approximately 86 % of the call volume involves EMS. Fifty-four dispatchers work in the City General Services Dispatch Center.

Present Situation

1. Conventional radio is used in the UHF band. Fire has 6 licensed channels repeated from a primary Catalina site with a backup site at Swan Rd. One channel is dispatch; four are operational channels: 3 for medical and one for fire and an administrative channel.
2. Three simplex channels are licensed for on-scene use. These fireground channels are not currently monitored or recorded in dispatch. These simplex channels are utilized for company drills and on fireground when the primary duplex channel fails to provide sufficient coverage.
3. Portable radios are assigned to vehicles. Inventory consists of mostly Motorola XTS 3000 and 5000 with some remaining older Sabers. Some personnel on the street use shoulder mics. During fire service, radios are carried in a chest pocket. These radios have provided good service with easy-to-use knobs and controls. Each vehicle is equipped with a mobile.
4. Interoperability with TPD is done through dispatch or directly using the Gateway channel.
5. Patient information is transmitted over an UHF voice channel. EKGs are transmitted over cellular service.
6. TFD has installed an ACU 1000 in a van for radio interface to outside response teams:
  - USAR – Federal Urban Search and Rescue
  - RRT – Rapid Response Team (State)
  - State Hazmat Team
  - MMRS – Metropolitan Medical Response Team (Federal)
7. A new system using IP MobileNet equipment and laptop computers is being tested and installed. Northwest Fire is a partner in this initiative. The system will use three 800 MHz frequencies.
8. Capabilities of the new Mobile Data system will include:
  - Text Messaging



- Vehicle to vehicle and dispatch messaging
- Mapping
- Field reporting
- Hotspot technology at the Fire Stations

Present Problems

1. In general, communications is very simple and reliable; however, in-building coverage is described as poor.

Future Requirements

1. Fire needs portable radio that easily connects to a wide variety of third party vendor accessories such as throat mics, helmet mics, and SCBA equipment.
2. Continued use of intrinsically safe radios.
3. As it becomes available, personal radio links such as Bluetooth for connecting radios to accessories.
4. Some means of short range “open channel” voice communications allowing a small group to communicate intercom-fashion, but hands-free.
5. Project 25 technology is attractive for interoperability.
6. Additional repeated fire channels.
7. Emergency function and calling radio ID displayed at the consoles.

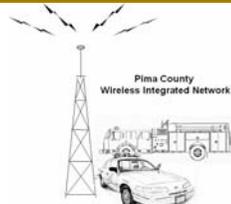
The draft of this record was sent to Captain Paul Wilson on April 3, 2006.

Corrected draft was returned to CTA Communications on May 12, 2006.

Interviewee Name & Address:

Captain Paul Wilson, PCSO  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Tucson Fire Department

File Name: 022406 Tucson Fire Senior Staff FINAL.doc

Date of Interview: February 24, 2006

Location of Interview: Tucson Fire Department  
265 S. Church  
Tucson, AZ 85701

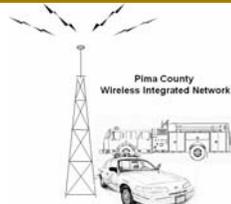
Persons Interviewed: Joe Gulotta, Deputy Chief – Tucson Fire Department  
Ray W. Allen, Assistant Chief – Operations Division  
Gerry Bates, Assistant Chief – Operations Division  
Todd Pearson, Battalion Chief – Operations Battalion IV  
Anita Velasco, Communications Administrator  
Christine O’Connor, Deputy Director – IT  
Yvonne Morken, IT Manager  
Joe Jakoby, Communications Engineer – IT  
John Crosby, Communications Superintendent – IT  
Paul Wilson, Captain – Pima County Sheriff’s Department

CTA Interviewers: Cheryl Giggetts, PMP – President  
Ken Ballard, Ph.D. – Vice President

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. The Tucson Fire Department is responsible for fire fighting, HAZMAT (Hazardous Materials) spill response, and rescue services within the City of Tucson, Arizona.
2. Fire fighters within the department are organized under Local 479, a worker’s union.
3. IT works with the Fire Department and is responsible for computers, CAD (computer aided dispatch), radios, mobile data computers and related technology.



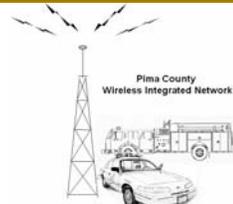
4. Anita Velasco works for the General Services Department (not the Fire Department). The General Services Department owns and operates the dispatch center and radio system (infrastructure) for Tucson Fire Department.
5. The E-911 call takers for Tucson Fire Department are also employees of the General Services Department.
6. Battalion Chief Todd Pearson represents the Tucson Fire Department on the PCWIN User's Committee.
7. Carl Drescher is the key individual in the City who will have detailed information about the IT fiber-optic network and nodes.

Present Situation

1. Tucson Fire Department (TFD) currently uses an analog conventional radio system in the UHF frequency band (450 MHz) for voice communications and an 800 MHz radio system for mobile data.
2. Some TFD radio sites are currently being modified to accommodate the City's new microwave and Fire mobile data equipment.
3. TFD has six (6) monitored duplex channels:
  - 1 Dispatch channel
  - 3 Medical channels
  - 1 Fire channel
  - 1 Admin channel

In addition, the Fire Department has three (3) simplex frequencies, which are used as "fire-ground" channels for on-scene communications when necessary. These are especially helpful for in-building portable coverage.

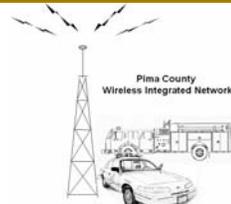
4. The City's Public Service and Public Works departments are dispatched from the Fire Department's communications center.
5. Three (3) channels in the 800 MHz band are currently being used to support the TFD mobile data system. New mobile data computers (MDC's) are now being installed on fire trucks to work over the new IPMobile Net infrastructure.



6. Tucson Fire has had an Automatic Vehicle Location (AVL) system in use for about 10 years now. The department is currently in the process of replacing the system with an ADSi system.
7. TFD also utilizes “ERLink” – this is a pilot project mesh network with about one access point per square mile within the city limits. It is used to provide a video feed from the back of an ambulance to the destination hospital.
8. Comtech (a vendor) has installed and cutover a new fire station alert system for TFD.
9. Command level staff at TFD (e.g., assistant chiefs) carry digital pagers. The paging is done for the Fire Department by a commercial service provider. The CAD system automatically initiates the necessary pages based on predetermined incident types.
10. The CAD system and the reports reside on the same server.
11. Tucson Fire Department has standing mutual aid agreements with surrounding jurisdictions and with state agencies.
12. TFD maintains two “rapid response team” for rescue and HAZMAT deployments anywhere in the state.
13. The Tucson Fire Department uses a gateway system that links channels in the UHF, VHF and 800 MHz bands together for an interoperable channel in the local area.
14. TFD also has an ACU-1000 unit in one of its vans – this can be rapidly deployed to a fire scene for radio interoperability among fire fighters in a mutual aid scenario.
15. Fort Huachuca (located southeast of Pima County) uses a system they call “DICE” for interoperability in mutual aid situations.
16. The University of Arizona does not have a Fire Department. TFD provides this service to the campus in Tucson. The campus is one of TFD’s in-building coverage problem areas.

Present Problems

1. The current radio system infrastructure is old and worn out. Break-downs and repairs have occurred with more frequency in recent years.



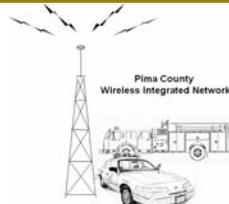
2. Although the Fire Department has six operational channels, capacity seems to be a problem. People either step on each other's calls, or become frustrated waiting for their frequency to clear so they can make their call.
3. There are coverage problems (dead spots) in both the east and west sides of the City.
4. Building penetration with the current radio system (from repeater sites) is certainly not reliable citywide. Communications with the dispatch center is critical on both fire and medical operations.

Future Requirements

1. The next radio system must have adequate channel capacity to accommodate the required increase in Tucson Fire personnel, and the radio traffic load that they will generate.
2. For the mobile data system, there was a question as to whether the 3 channels allocated (in the 800 MHz band) will be adequate for the traffic generated by Tucson Fire.
3. Reliable coverage throughout the City is critical. Especially important is the in-building coverage to portable radios and the ability to talk back to dispatch.
4. Fire-ground safety is, and will continue to be, a major factor. Provisions for fire-ground frequencies, preferably "analog" mode, will have to be made for fire fighters. The instant access that these simplex (talk around mode) channels permit is critical for augmenting fire-ground operations when necessary.

Additional Comments

1. Despite the age of the equipment, the radio shop does an excellent job of fixing subscriber gear quickly and getting it back into the hands of fire fighters. Likewise, when there are problems with the radio network, the engineers and technicians react immediately and work to correct the issue as soon as can be expected. They have managed to keep the legacy radio system functional and reliable, despite the challenges.
2. There was discussion on the topic of building penetration, and which was better: VHF or 800 MHz? Dr. Ballard (CTA) responded that, generally speaking, VHF propagates better outdoors – especially through hilly, wooded terrain; but that 800 MHz waves tend to penetrate buildings better. This is due to basic physics – 800 MHz radio waves have a shorter wavelength than VHF.



Glass windows in buildings are nearly transparent at radio frequencies (much like they are in visible light), so windows are the most efficient way for radio waves to penetrate a building. Because 800 MHz radio waves have a shorter wavelength, the windows in the building appear “larger” to these waves than they do to VHF waves. Studies have measured these effects, and are documented in the technical literature. Attenuation factors for VHF frequencies typically run 8 dB (or more) higher than for 800 MHz in the same building.

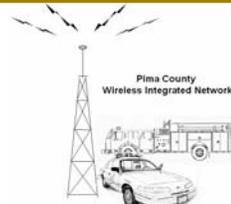
3. There was also some discussion concerning fire-ground frequencies, and whether communications on these channels could be remotely monitored by, and recorded at the dispatch center. Dr. Ballard’s response was that “no, the fire-ground frequencies could not be heard at the dispatch center because they are not carried on the repeaters.”  
*[Information that came to his attention shortly after the meeting with Tucson Fire has shown that his response was incorrect (or at least out of date). To set the record straight – there is in fact new technology that would allow analog conventional fire-ground frequencies (simplex mode) to be monitored and recorded at a remote dispatch center via a trunked radio system. In-band vehicular repeaters, which have been recently developed for just such an application, are able to relay the simplex communications traffic directly back to dispatch via a dedicated talk-group on a trunked radio system. It is our understanding that the City of Phoenix is currently performing trial tests with these devices on their fire apparatus. CTA will monitor with interest the outcome of their testing. If successful, this technology may be a significant break-through and would answer one of the remaining questions concerning the use of conventional analog fire-ground simplex frequencies (to achieve building penetration on the scene of a fire) in conjunction with a digital trunked radio system.]*

The draft of this record was sent to Battalion Chief Todd Pearson on April 7, 2006.  
The corrected draft was returned to CTA Communications on May 12, 2006.

Interviewee Name & Address:

Todd Pearson, Battalion Chief  
Operations Battalion IV  
Tucson Fire Department  
P. O. Box 27210  
Tucson, AZ 85726-7210

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## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** City of Tucson Police and Fire

<b>Contact Name:</b> Anita Velasco	<b>Position:</b> Communications Administrator
Linda Basham-Gilbert	Police Communications Superintendent
Rich Brace	Comm Maintenance Superintendent
<b>Phone:</b> 791-3112	<b>Email:</b> <a href="mailto:Anita.Velasco@tucsonaz.gov">Anita.Velasco@tucsonaz.gov</a>
791-2563	<a href="mailto:Linda.Basham@tucsonaz.gov">Linda.Basham@tucsonaz.gov</a>
791-3121	<a href="mailto:Rich.Brace@tucsonaz.gov">Rich.Brace@tucsonaz.gov</a>

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	
<b>Mobiles</b>	669					
<b>Portables</b>	1973					
<b>Control Stations</b>	0					
<b>Paging units</b>	0					
<b>Other Devices</b>	0					

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

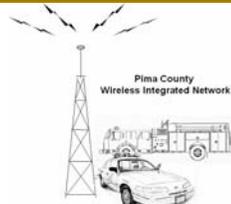
Mobiles: VHF: 550, UHF: 119

Portables: VHF: 1596, UHF: 377

Tucson Police utilizes VHF and Tucson Fire UHF

In TFD, units are used throughout the shifts, so level remains consistent.

For TPD, shifts will be discussed with consultants due to the number of variables which could occur.



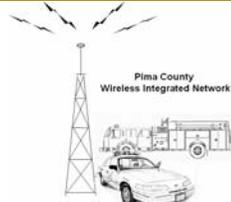
c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	2	y
Water Tender	14	y
Pumper/ Engine	39	y
Ladder Truck	9	y
Ambulance	27	y
Patrol Vehicles	See "Clarifications" below	
Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck	13	y
Utility Trucks	1	y
Highway Maintenance		
Vans	3	y
Buses		
Cars	14	y
Other (Please Describe)	6	y

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

Quantities listed above are for Tucson Fire. Tucson Police shown on subsequent page.



**Tucson Police LOGISTICS DIVISION**  
**FLEET COMPOSITION ANALYSIS**  
***Current as of: February 01, 2006***

**Fleet Composition:**

**All vehicles have radios with the following exceptions:**

**5 All Terrain Vehicles, 5 Electric vehicles, and 2 Armored Units that have intercoms. 3 or 4 unmarked units do have radios but most unmarked cars do not. Motorcycles have fixed radios.**

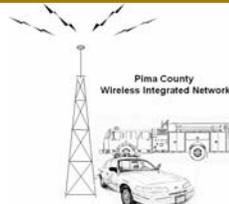
**There are three Air Support Unit helicopters. Each have two Wulfsburg C-5000 radios.**

- 366 fully marked Crown Vics,
- 20 Dodge Intrepids, 17 are assigned to commanders, 3 are assigned to Traffic, DUI
- 10 sport utility vehicles
- 5 pickup trucks
- 12 vans
- 5 all terrain vehicles
- 5 electric GEM vehicles
- 2 Armored Personnel Carriers
- 1 mobile command post.
- All vehicles listed above, except for the 2 Armored Personnel Carriers, are fully marked and capable of code 3 response
- TPD maintains a fleet of 20 training vehicles, although this number varies as a result of attrition.
- In the works is 1 RRT vehicle, completion expected around June, 2006 and 1 Hostage vehicle, completion expected around September, 2006.
- We're also working on the retrofitting of an old Van Tran mini bus for the RTC.
- As for our unmarked fleet, we have 180 sedans and trucks assigned to investigative and administrative positions
- 40 leased and 40 forfeitures unmarked vehicles
- TPD is currently operating 45 motorcycles, maintains 10 spares and 12 trainers... all are currently Kawasaki KZ1000 Police models

**In summary:**

- Marked: 413 sedans, SUV's, vans and trucks
- 5 Gem electric vehicles
- 260 unmarked
- 45 motors

**Grand total: 799...** does not include aircraft.



d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
4004 S. Park Ave, Tucson, AZ.	18	Dispatch backup radios
270 S. Stone Ave., Tucson, AZ.	15	Emergency backup radios

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

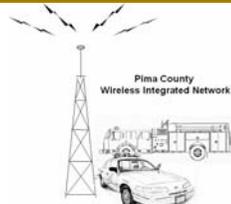
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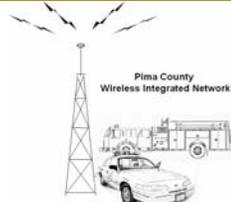
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**Tucson Police Dept  
Channels**

<b>Channel</b>	<b>Use</b>	<b>Repeat/Simp lex</b>	<b>Band</b>
1	Ops South	Repeat	VHF
2	Ops West	Repeat	VHF
3	Ops Midtown	Repeat	VHF
4	Ops East	Repeat	VHF
5	Ops Downtown	Repeat	VHF
6		Repeat	VHF
7		Repeat	VHF
8		Repeat	VHF
9		Repeat	VHF
10		Repeat	VHF
11	Simplex	Simplex	VHF
12	Gateway	Repeat	VHF



ATTACHMENT 2

Tucson Fire Dept Channels

Channel	Use	Repeat/Simplex	Band
1	Fire Suppression	Repeat	UHF
2	Dispatch/Routine	Repeat	UHF
3	Administration	Repeat	UHF
4	Medical-South	Repeat	UHF
5	Medical-North	Repeat	UHF
6	Sole Provider transport	Repeat	UHF
7	Fireground	Simplex	UHF
8	Fireground	Simplex	UHF
9	Fireground	Simplex	UHF
10	Starr Pass/Avra Valley	Repeat	UHF
11	UAPD	Repeat	UHF
12	Gateway	Repeat	UHF
13	TIA Fire	Repeat	UHF
14	MEDS 1	*	UHF
15	MEDS 2	*	UHF
16	MEDS 3	*	UHF
17	MEDS 4	*	UHF
18	MEDS 5	*	UHF
19	MEDS 6	*	UHF
20	MEDS 7	*	UHF
21	MEDS 8	*	UHF
22	MEDS 9	Repeat	UHF
23	MEDS 10	Repeat	UHF

\* NOT REPEATED,  
 BUT FULL DUPLEX  
 MEDICAL  
 TELEMETRY &  
 ORDERS

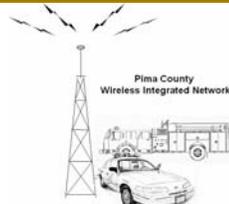


**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
See Attachment 3						
Localized "dead" areas			X			
In-Building & confined space coverage						X
Annexed territory not well covered				X		
Adjacent or co-channel interference						
Combining Freq is cumbersome			X			
Intentional Radio Interference (PD)		X				

- 0 : No problem identified.
- 1 : Identified problem, currently not of concern. May become a concern in the future.
- 2 : Occasionally a problem, affects some operations but is generally worked around.
- 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
- 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
- 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.



ATTACHMENT 3

Issues with City of Tucson Fire, MEDS and Police radio coverage

Radio coverage in areas annexed into the City after the radio system was built in the early 1980s is lacking, some areas have spotty coverage, some have none.

In-Building coverage issues are present throughout the region. High density construction and some regional coverage issues add to the in-building problem.

Starr Pass, Cholla High School, and areas south and west of Tumamoc Hill have problems with VHF & UHF radio coverage due to the Tumamoc and "A" Mountain terrain. In-building coverage has been a long standing problem for TFD responders inside the Pima County Jail.

Houghton Corridor (southeast Tucson) also a problem for both UHF & VHF.

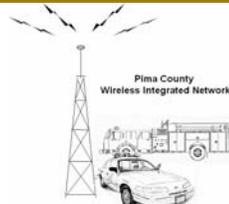
Several TPD Team 3 officers have complained about poor reception around Grant/Columbus, both mobile and portable.

"State land" annexed into the City north of the Andrada Rd and Pima Mine Rd alignments, while still "open space", has been identified with coverage issues on VHF, UHF, and 800 MHz. In-building coverage was not checked, but vehicle mount radios had difficulty receiving. Problems using UHF inside buildings at the new Federal Correctional facility on Wilmot Rd are likely, but have not been formally assessed.

Some Tucson Police channels receive co-channel interference from sources in Maricopa and Santa Cruz counties.

Some Tucson Fire channels receive co-channel interference from source(s) in the direction of Maricopa county (source remains undetermined)

EMS responders in the Catalina, Oro Valley, and Picture Rocks/Avra Valley areas experience difficulty on MEDS telemetry channels. The MEDS 9 hospital backup radio at Northwest Hospital-Oro Valley is marginal due to location of base stations on the far side of Pusch Ridge from the hospital.





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

Thank you for your assistance.

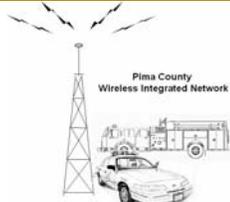
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** City of Tucson, IT (for Tucson Fire)

**Contact Name:** Joseph Jakoby

**Position:** Communications Engineer

**Phone:** (520) 837-6054

**Email:** Joe.jakoby@Tucsonaz.com

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION – Information provided is for system currently being installed**

Mobile data equipment do you currently have IPMobileNet 800 Mhz

Age: New Condition: New Adequate: Yes

Mobile data functions that you currently have and use:

Computer Aided Dispatch: Yes Name of CAD system: ADSi

Access to Records Management: None Name of RMS system: N/A

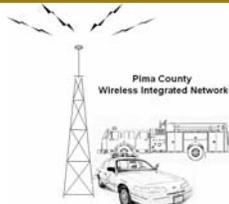
Records functions available: No

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): Yes

Email: N/A Outlook or web-based? N/A

Text Messaging: Car to car: Yes Car to dispatch: Yes

Query (Person, Vehicle, Property, etc)Local: N/A State: N/A National N/A



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: Mobile mapping, 4.9 GHz network access points at fire stations, 4.9 GHz adhoc vehicle networking with Cisco MAR 2.4 GHz in-vehicle only.

Other software: ADSi MDTForce, ADSi MapForce, ADSi AVL, iAnywhere

Problems or concerns with your current capabilities:

The City of Tucson Fire Department operates primarily within the Tucson city limits.

The system currently being installed by IPMobileNet is undergoing acceptance at this time.

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**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

On-scene video. \_\_\_\_\_

Field Reporting \_\_\_\_\_

Inspection Reporting \_\_\_\_\_

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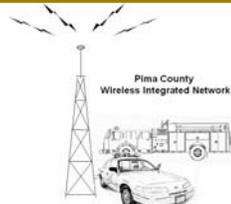
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**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): 3 – 800 MHZ channels.

Commercial Service (Verizon, etc): None

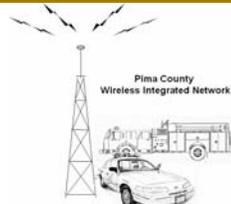
Wi-Fi : 4.9 GHz, 2.4 GHz in vehicle only

Other (Describe): Cisco mobile access router (MAR) in each vehicle.

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	125		+25	+18	+18
Wireless Handhelds (PDA's)	None				
AVL equipped	125		+25	+18	+18
Digital Pagers	None				
Tone Voice Pagers	None				
Other Devices _____					

\*\*Quantities shown are additional units for each 5 year group.



Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	397 per day
Query (license checks, vehicle registrations, wanted persons, property checks)	N/A
Car-to-car or car-to-dispatch message	Qty Unknown
Status updates	1,127 per day
Emails	None
Field Report	Future
Other _____	
Other _____	
Other _____	

#### 4. Computer Systems Checklist – Fire & EMS Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Fire and EMS Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Fire and EMS Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

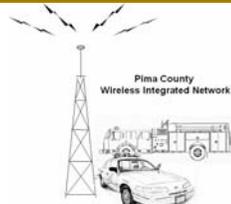
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

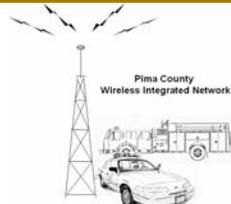
This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.



**Fire and EMS Department Checklist**

- 1) Department Name Tucson Fire Department
- 2) Contact Name Assistant Chief Ray Allen
- 3) Contact Telephone Number 520-791-4512
- 4) Primary Response Area Within the city limits of Tucson  
228 square miles  
245 square miles
- 5) Number of Personnel  
  
Current 550 5 Year Growth 750
- 6) Number of Fire Trucks and/or Engines  
  
Current 43 5 Year Growth 60
- 7) Number of Rescue and/or EMS response vehicles  
  
Current 24 5 Year Growth 34
- 8) Number and description of specialized vehicles (such as HAZMAT, Aerial, Command, Heavy Rescue, etc.)  
  
Description Hazmat Units  
  
Current 2 5 Year Growth         
  
Description Heavy Rescue  
  
Current 3 5 Year Growth



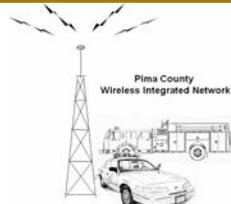
Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

- Description Brush Trucks
- Current 2 5 Year Growth 4
- 9) Number of Fire or EMS stations
- Current 20 5 Year Growth 25
- 10) Number of Fire and/or Response Zones
- Current 4 Battalions 5 Year Growth 5 Battalions
- 11) Number of Fire runs per year
- Current 11941 5 Year Growth 16000
- 12) Number of EMS responses per year
- Current 65703 5 Year Growth 88700
- 13) Number of Other calls requiring a unit (education, assist citizen, standby, etc.)
- Current Unk 5 Year Growth \_\_\_\_\_
- 14) Number of calls (included above) that are out of your District/Jurisdiction.
- Current 3 5 Year Growth 10
- 15) Number of calls (included above) that are out of Pima County.
- Current 0 5 Year Growth Unk
- 16) Number of calls (included above ) that are out of Arizona.
- Current 0 5 Year Growth Unk
- 17) Number of HAZMAT pre-plans



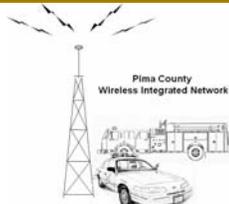
Computer System Checklist – Fire and EMS Department  
Page 3 of 7



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

- Current N/A 5 Year Growth \_\_\_\_\_
- 18) Number of structure and location pre-plans  
Current Unk 5 Year Growth \_\_\_\_\_
- 19) Number of Move-up Plans  
Current N/A 5 Year Growth \_\_\_\_\_
- 20) Number of fire hydrants  
Current 11000 5 Year Growth Unk
- 21) Number of Mobile Data terminals  
Current 110 5 Year Growth 140
- 22) Number of Station Computers or others that would log-on to the network  
Current 60 Station, 220 Other 5 Year Growth 72 Station, 240 Other
- 23) Number of personnel that would require an individual log-on password  
Current 180 Station, 220 Other 5 Year Growth 216 Station, 240 Other



**Provisions of NFPA 1221**  
**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

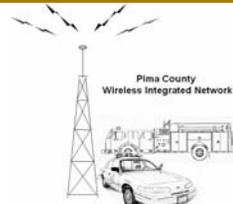
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities



**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

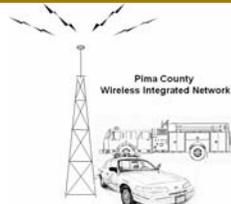
The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.



5. Documentation Provided

Tucson Fire provided CTA with the following documentation items:

- TFD portables and mobiles list 3/8/06
- Radio Coverage map
- Tower locations
- Fire Rescue Frequency Bands
- Radio antenna frequencies
- Radio Channel Unit Inventory
- Annual Report
- Activity Report
- Organizational Structure
- Organizational Chart
- TucsonPropsA1.pdf
- System Data TPD folder of documents
- FCC Lic Update 2-28-06.pdf
- 911 Call Volume Comparison
- City of Tucson Update.pdf

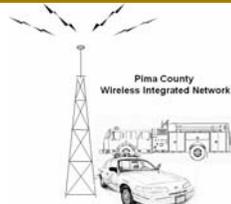






TABLE 2.2.1A Existing Interoperability

Tucson FD		Tucson FD		Tucson FD	
Agency Types		Agency Types		Agency Types	
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives
	Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection
X	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration
	Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security
	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation
	Elephant Head Vol. FD		Pima County Sheriff's Dept.	X	Immigration and Customs Enforcement
X	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service
	Green Valley Fire District		Sahuarita PD		Bureau of Land Management
	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife
	Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service
X	Northwest Fire District		Tucson Airport Authority PD		U.S. Marshals Service
	Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety
X	Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish
	Rincon Valley Fire District				
	Rural Metro Fire/Southwest Ambulance				
	South Tucson FD				
X	Three Points FD				
	Tohono O'odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				

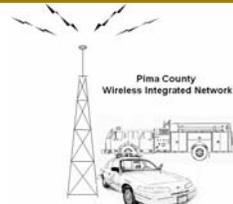
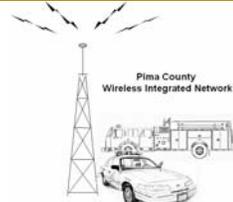


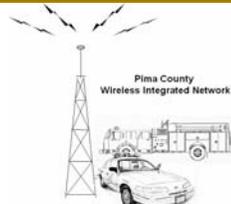
TABLE 2.2.1B Future Interoperability

Agency Types	Fire Agencies	Police and Emergency Services Agencies	Federal Agencies	Agencies
Tucson FD				
	Ajo/Gibson Vol. FD			
	Arivaca Vol. FD			
X	Avra Valley Fire District		Bureau of Alcohol, Tobacco, Firearms & Explosives	
	Corona de Tucson Fire District	Marana PD	Customs and Border Protection	
X	Drexel Heights Fire District	Oro Valley PD	Drug Enforcement Administration	
	Elephant Head Vol. FD	Pascua Yaqui PD	Emergency Man. & Homeland Security	
X	Golder Ranch Fire District	Pima College Dept. of Public Safety	Federal Bureau of Investigation	
	Green Valley Fire District	Pima County OEM & Homeland Security	Immigration and Customs Enforcement	
	Helmet Peak Fire District	Pima County Sheriff's Dept.	National Park Service	
	Mt. Lemmon Fire District	X Pima County Sheriff's Dept. - Ajo	Bureau of Land Management	
X	Northwest Fire District	Pima County Sheriff's Dept. - Ajo	U.S. Fish & Wildlife	
	Pascua Pueblo FD	Sahuarita PD	U.S. Forest Service	
X	Picture Rocks Fire District	South Tucson PD	U.S. Marshals Service	
	Rincon Valley Fire District	Tohono O'odham Tribal Police	X Arizona Dept. of Public Safety	
	Rural Metro Southwest Ambulance	Tucson Airport Authority	Arizona Game and Fish	
X	South Tucson FD	X Tucson PD		
	Three Points FD	University of Arizona Police		
	Tohono O'odham FD			
	Tucson Airport Authority FD			
	Tucson FD			
	Ajo Ambulance			
	Why Fire District			



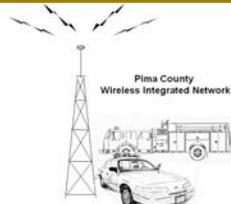
**TABLE 2.2.1C  
 Tucson Fire Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	5.0	
2	Improved Voice Radio Coverage – Central County	5.0	
3	Improved Voice Radio Coverage – Western County	4.0	
4	In-building Coverage	5.0	
5	Minimize Local Interference	4.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	4.0	
7	On-scene Fire Channels	5.0	
8	Monitored Firegrounds	5.0	
9	Emergency Alerting	4.0	
10	Workgroup Oriented Operation	4.0	
11	Voice Security	4.0	
12	Operational Boundary Transparency	3.0	
13	One System Serves All Agencies	3.0	
14	Interoperability through Dispatch	4.0	
15	Interoperability with Adjacent Counties	1.0	
16	Interoperability with State Agencies	1.0	
17	Interoperability with Federal Agencies	1.0	
18	Person Location	4.0	
19	System Control	4.0	
20	Recorded Operations	5.0	
21	Simplified User Operations	5.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	5.0	
23	Dispatch Capacity	5.0	
24	Dispatch Coverage	5.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	2.0	
26	Cross CAD Interconnection	2.0	
27	Mobile Data Criticality	5.0	
28	Vehicle Location	5.0	
29	EMS Telemetry	5.0	
30	High-Speed Broadband Service	4.0	
31	Mobile Applications	5.0	
32	Advanced Mobile Applications	4.0	
33	Access County Information	3.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	3.0	
35	Fire Station Alerting	5.0	
36	Paging over Cellular	1.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	5.0	
38	Owner-Controlled Backbone	5.0	
39	Microwave Connectivity	5.0	
40	Microwave Additional Capacity	4.0	
41	Regional Connectivity	3.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	No single points of failure
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	5.0	
47	Centralized Maintenance	4.0	Need clear demar points for systems not centrally maint



**TABLE 2.2.1C**  
**Tucson Fire Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	4.0	
49	Commonality of Equipment	3.0	
50	Multiple Sources	4.0	
51	Phased Implementation	4.0	
52	Tiered Subscriber Cost	4.0	
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.2.2 Tucson Police Department

### A. Current Environment

#### 1. Operational

The Tucson police department is charged with serving the City of Tucson public to protect life and property, prevent crime, and resolve problems. There are approximately 1,030 sworn officers and 385 non-sworn personnel in the department. TPD organization structure:

- A. Chief of Police
- B. [Chief of Staff](#)
- C. Deputy Chief of Police – Professional Standards Division

#### Operations Bureau 1

[Operations Division South](#)

[Operations Division West](#)

[Operations Division Downtown](#)

Communications Division

Force Commander

[Emergency Communications](#)

#### Operations Bureau 2

[Operations Division Midtown](#)

[Operations Division East](#)

Field Support Division

[Traffic](#)

[Tactical Support](#)

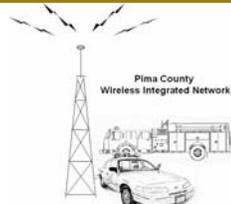
Air Support

[Service Dogs](#)

[SRO](#)

[GREAT](#)

Honor Guard



Specialized Response Division  
Emergency Management Section

SWAT  
Bomb Squad  
Disaster Planning  
Special Events Support  
Special Duty

Administrative Services Bureau

Police Logistics Division  
Budget  
Training Division

Information Services Division

Human Resources Division

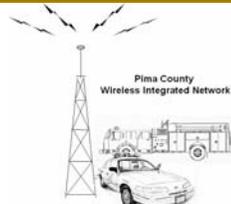
Backgrounds  
BSU  
Payroll  
Personnel  
Recruiting  
Safety Coordinator

Investigative Services Bureau

Crimes Against Persons Division  
Property Crimes Division  
Counter Narcotics Alliance  
Forensics Division

2. Functional

The Tucson Police Department has an extensive communications network that supports 911 PSAP operations, public safety radio voice systems, mobile data systems, CAD/AVL, Record Management Systems, and “Hot-Spot” wireless technologies.



The Public Safety Communications Center (COMMO) is located at 4004 S Park Avenue in Tucson. It is the primary PSAP for law enforcement and fire rescue operations for the City of Tucson. The Community Service Officers assigned in Communications, staff the non-emergency lines. The Police Service Operators staff the emergency desk, and the Public Safety Dispatchers staff the radio frequencies. Each position serves a variety of responsibilities:

- 791-COPS (791-2677) — Information only
- 791- Police Service Operators
- 4444 — None-Emergency line
- Public Safety Dispatchers

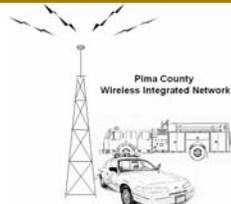
Qwest is the 911 switch provider. The switch is a VESTA Plant Switch - PALLAS. All 911 calls are taken by the call takers and then are relayed to the appropriate dispatchers for fire, medical or police response.

Currently the TPD has 17 call takers and 4 dispatchers. All positions provide ANI/ ALI information. TFD has 7 call takers and 12 dispatchers under General Services Management. The 12 TFD dispatch positions display ANNI/ ALI information. The Emergency Command Center is located at 270 South Stone Street.

### 3. Technical

The city I-NET Fiber Optics system is a SONET network that consists of DS1, 1,000 Base T OC3, OC12, and OC48 capacities.

There are approximately 42 sites that connect to connect city/county facilities, radio RF sites, mobile data, WAN-LAN Wi-Fi sites, the TPD Communications Center and the PCSD Comm. The fiber optics network has east and west OC48 rings and OC3 and OC12 links that are configured in collapsible ring configurations to provide redundancy throughout the city of Tucson.



The SONET system utilizes the Cisco 15454 multiplexer.

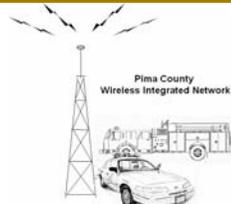
The fiber optics network is supplemented with an analog microwave system consisting of 950 MHz, 2 GHz and 6 GHz microwave links. Circuit capacity of the analog microwave equipment is 620 channels and 320 channels. By the end of the year TPD expects to have a new SONET microwave system installed. The equipment includes the Constellation radio manufactured by Harris and it will operate in the 6 GHz and 11.2 GHz frequency bands. OC 3 capacities are planned and Harris is including the Cisco 15454 SONET multiplexers. Approximately 22 links are planned.

There are four tower sites that support Tucson Police radio operations. The Tucson Fire Department transmitters are collocated on these tower sites. The tower locations include:

Fire Station 16;	65 foot self support tower
Fire Station 19;	80 foot self support tower
Corona de Tucson;	30 foot self support tower
Randolph Way;	120 foot monopole tower

The Police utilize a Mobile Data system that provides service throughout the City of Tucson. It is a Motorola RD-LP system consisting of 16 channels (Quantar repeaters), and operating in the 800MHz band. Pad-com middle ware software controls the system. Throughput is 19kbps. The Mobile Data System has four RF sites – Tummac Hill (6 channels), Skyline (8 channels) and Campbell (8 channels). There are three Radio network Controllers (RNC) in the system. It operates with the Northrop Grumman (old PRC) CAD system (1989).

The Police currently have thirty two (32) - 2.4 GHz hot spots installed including all police stations, and approximately half the fire stations and some libraries.

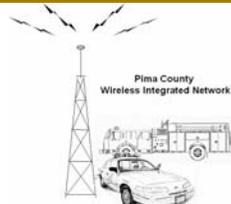


Squad cars are equipped with MDC's and 802.11b capabilities. TPD access points include Police HQ, and the four department substations.

Officers can receive and transmit records to the CAD system, accessing COP-Link, Automatic Field Reporting System (AFRS), CJIS, and CJIS records. There are plans to move towards 802.16 technology.

The TPD primarily utilizes a VHF conventional repeater system based from the Catalina site, Swan Rd, and Randolph Way. Both VHF voice and 800 MHz mobile data transmitter locations are shown in the chart below.

Arco Tank	Catalina	PSTA	Randolph	SCMW	ST 12	ST 17	Swan	Tummamoc
	PD 1S						PD 1M	
	PD 2S						PD 2M	
	PD 3M		PD 3S					
	PD 4 M				PD 4M		PD 4M	
	PD 5 M		PD 5S					
	PD 6 S						PD 6S	
	PD 7M						PD 7M	
	PD 8M						PD 8M	
	PD 9M						PD 9M	
	PD 10M						PD 10M	
PD 800	PD 800 1-8	PD 800		PD 800-2		PD 800-1&2		PD 800 1 thru 6



4. Interoperability

TABLE 2.2.2A shows the existing direct interoperability capabilities with other agencies for the department. The Police Department usually communicates on their primary VHF channel. The department has access to the Gateway repeater located at Tucson MTN. to communicate with other law enforcement, and rescue agencies. Typically, the officers will utilize their cell phone to contact other agencies.

B. Positive Attributes of Current Environment

1. Operational

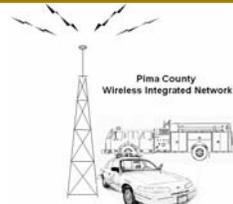
The officers and detectives in the field utilize MTS series radios and the battery life duration is less than a typical shift for most MTS series radios. The radio microphones are noisy and do break. The TPD would like these items to be addressed in the near future.

2. Functional

The TPD has experienced coverage issues especially within larger buildings located in down-town and mid-town areas, down-town 4<sup>th</sup> street tunnels, and the main sub-station. Other locations include the Tucson Mall, the Starpass Area, the UMC and TMC hospitals, the Air Force Base the northeast side of town, the Haughton area, the area west of A mountain, and the west end of 36<sup>th</sup> street are coverage area problems also.

3. Technical

The TPD also has plans underway to move towards a Wi-Max 4.9 GHz system. Currently, access points are planned at all the Tucson Fire stations.



Some applications will include Automatic Vehicle Locator (AVL), Records Reporting, EMT records, and Inspection reports access from the Communications Center to the vehicle. Tropos is the company implementing this project.

C. Desired Attributes of Current and Future Environment

1. Operational

Additional channels and/ or capacity to support operations and relieve congestion on channels are needed, as well as improved wide-area and in-building coverage performance.

Mobile data technology and Mobile Terminal Computers in vehicles, and text messaging capabilities is required.

Access to Record Management in vehicles and in the field is needed; ACIC, Cop-Link, mug shots, text, warrants, criminal history, utility status, internet-access, ACJIS, and CJIS.

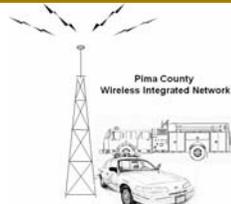
2. Functional

The new system needs to be reliable and have redundancy and fault tolerance built into it. Radios should offer technology features such as encrypted communications, improved performance, shorter antennas, GPS location capabilities, text messaging, group call, telephone interconnect, and private call.

The new system should have capacity to support the department's long-term growth.

The ability to roam throughout a wide-area (city or county) without having to manually change channels is an important feature.

A paging notification including a visual notification for aircrafts in flight is important.



3. Technical

Wireless Bluetooth technology should be accessible by all officers and include Automatic Vehicle Location (AVL) technology and GPS radio location technology. Video capability in vehicles is needed.

TPD plans to build-out the fixed access network system and expand 10BaseT Wi-Max capabilities. Potentially this growth can be implemented with the TFD W-Max plan already in place, utilizing Fire Stations, and 4.9 GHz frequency bands licensed for public safety users.

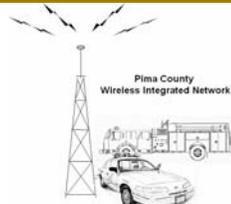
4. Interoperability Matrix

TABLE 2.2.2B shows the future direct interoperability capabilities with other agencies for the department. TPD communications with outside agencies are not conducted by radio, but by cell phone communications. The University of Arizona PD operates on different frequencies and interoperability is an issue.

Radio Interoperability is required with the Sheriff Department, State Police, FBI, ATF, and ICE, Game & Fish. It is desirable to have common frequencies or talk-groups available to simplify radio protocol procedures and monitoring to facilitate interoperability with other agencies.

5. Attributes Matrix

Please refer to TABLE 2.2.2C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Tucson Police Department

File Name: 022406 Tucson Police Senior Staff Interview Record  
Final.doc

Date of Interview: February 24, 2006

Location of Interview: Tucson Police Department  
270 S. Stone Avenue  
Tucson, AZ 85701

Persons Interviewed: Kermit Miller, Deputy Chief of Police  
Senior Officers (Captain rank and above)

CTA Interviewers: Cheryl Giggetts, PMP – President  
Ken Ballard, Ph.D. – Vice President

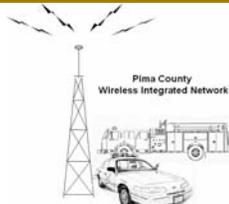
The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. Kermit Miller, Deputy Chief of Police for Tucson PD, convened the meeting which involved approximately 50 officers at the captain or higher rank. We have thus termed this record as input from senior staff at the Tucson Police Department.
2. The Tucson Police Department is responsible for law enforcement within the City of Tucson, Arizona. Details of the Police Department organization and responsibilities were not the subject of this meeting, but were covered in subsequent interviews with others.

Present Situation

1. Tucson Police currently use an analog conventional radio system in the VHF high band (approximately 155 MHz) for voice communications and an 800 MHz radio system for medium speed mobile data. Details of the present situation were not discussed at this meeting, but were detailed in subsequent interviews with others.



Present Problems

1. Current problems with the existing systems in Tucson were not discussed in any detail at this meeting, although there was a reference to Police Department having immediate needs that cannot wait 2, 3 or 4 years for a solution. Subsequent interviews by others from CTA Communications with designated Tucson PD personnel did delve deeply into problems and issues with the present systems. These issues are documented in the corresponding interview records.

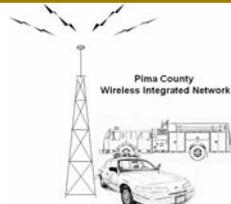
Future Requirements

During the question & answer portion of our meeting, the following needs were raised by one or more officers from the Police Department:

1. Tucson PD would like automatic location information not only for vehicles, but also for portable radios. If the portables had a GPS (Global Positioning System) chip installed, it might be possible for dispatchers to remotely monitor the precise location of officers on foot. This can be an officer safety issue. *(CTA – The GPS chip was suggested by TPD; there may be other methods to obtain this information, and there may be problems with using GPS as a single solution.)*
2. A small portable radio (in contrast with the standard “brick”) would be highly effective for detectives and undercover officers. A low-profile radio, perhaps disguised as a standard cell phone, would be most useful for this purpose.
3. Encryption capability is a critical requirement for any new radio system. Tucson PD needs encryption for various sensitive operations.
4. There is a need for “text messaging” on portable and/or mobile radios.

Additional Comments

1. Tucson PD would like to avoid throwing away communications equipment that still has useful life left. Put another way, they would like to maximize the re-use (or continued use) of existing equipment and facilities in the new radio system.
2. The purpose of this meeting was primarily for CTA principals to brief senior management at TPD on the goals and objectives of their engagement, and to describe the methodology for the initial needs assessment phase of the project.



Ms. Giggetts, President of CTA, and Dr. Ballard, Vice President, made brief statements and outlined their plans for the project. There followed a question and answer period where many of the Police Department officers inquired into CTA's qualifications, history, areas of practice, size of the firm, size and make-up of the team assigned to this project, experience with similar projects, lessons learned elsewhere, accuracy of past cost estimates, etc. Captain Paul Wilson (Pima County Sheriff's Department) also addressed some of these questions with a description of the RFP, proposal and evaluation process that the County followed in selecting CTA from among several qualified engineering and consulting firms.

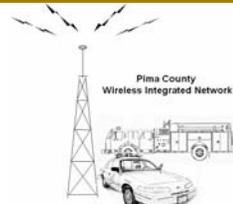
The draft of this record was sent to Kermit Miller on April 5, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:

Kermit Miller, Deputy Chief of Police  
Tucson Police Department  
270 S. Stone Avenue  
Tucson, AZ 85701-1917

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\022406 Tucson Police Senior Staff Final.doc



**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - City of Tucson Police Department  
Forensics, IT Data Services

**File Name:** - Pima County 022806 City of Tucson Police  
Department Commo, Data Service, IT Interview  
Record Final.doc

**Date of Interview:** - February 28, 2006

**Location of Interview:** - Pima County Sheriff Department

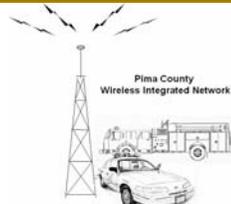
**Persons Interviewed:** -

Name	Department	Phone	Email
Linda Basham - Gilbert	TPD Comm. Specialist	791 2563	Linda.Basham@tucsonaz.gov
Joe Jakoby	Tucson IT	797 4747	<a href="mailto:Joe.jakoby@tucsonaz.gov">Joe.jakoby@tucsonaz.gov</a>
Angela Spencer	Comm. Supervisor	791 2563	<a href="mailto:Angela.spencer@tucsonaz.gov">Angela.spencer@tucsonaz.gov</a>
John Armstrong	TPD IT Manager	791 4499 x-1400	<a href="mailto:John.armstrong@tucsonaz.gov">John.armstrong@tucsonaz.gov</a>
Tom Leadbetter	TPD IT	791 4499 x-1405	<a href="mailto:Tom.ledbetter@tucsonaz.gov">Tom.ledbetter@tucsonaz.gov</a>
Carl Dresher	COT IT	791 4499	<a href="mailto:Carl.dresher@tucsonaz.gov">Carl.dresher@tucsonaz.gov</a>
Jim Wysocki	TPD/ Administrator	791 4499 x 1411	<a href="mailto:Kjames3.wysocki@tucsonaz.gov">Kjames3.wysocki@tucsonaz.gov</a>

**The Forensics**

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

The following points were conveyed to CTA during this interview:



**Organization and Responsibilities**

1. TPD organization structure:
  - A. Chief of Police
  - B. Chief of Staff
  - C. Deputy Chief of Police – Professional Standards Division

Operations Bureau 1

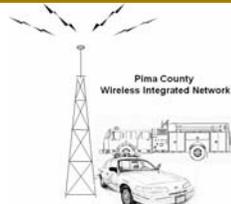
Operations Division South  
Operations Division West  
Operations Division Downtown  
Communications Division \*  
Force Commander  
Emergency Communications \*

Operations Bureau 2

Operations Division Midtown  
Operations Division East  
Field Support Division  
Traffic  
Tactical Support  
Air Support  
Service Dogs  
SRO  
GREAT  
Honor Guard

Specialized Response Division

Emergency Management Section  
SWAT  
Bomb Squad  
Disaster Planning  
Special Events Support  
Special Duty



Administrative Services Bureau

Police Logistics Division  
Budget -  
Training Division  
Information Services Division \*

Human Resources Division

Backgrounds  
BSU  
Payroll  
Personnel  
Recruiting  
Safety Coordinator

Investigative Services Bureau

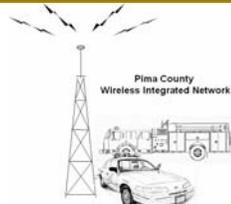
Crimes Against Persons Division  
  
Property Crimes Division  
Counter Narcotics Alliance  
Forensics Division \*

**Present Situation**

1. The Forensics Division is under the Investigative Services Bureau and consists of the Crime Lab, Evidence, and Identification Sections.

The Crime Laboratory is a full-service forensic laboratory (except limited toxicology). It contains six operational units: Forensic Biology (DNA), Comparative Analysis, Latent Prints, Chemical Analysis, Computer Forensics and Administrative Support. There is a staff of 27.

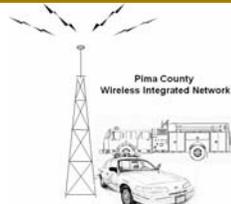
The Evidence Unit is responsible for handling and documenting evidence correctly to support investigations and analysis. This Section is staffed with approximately 20 technicians and a supervisor.



The Identification Section provides department support in forensic crime scene and evidence processing. This section contains the Forensic Crime Scene Unit (staff of 12), the AZAFIS Unit (staff of 8), and the Photo lab (staff of 2), the Robbery Surveillance Unit (staff of 1), and the Graphics Art Unit (staff of 1).

2. The Communications Division employs approximately 100 civilians whose primary responsibility is to provide emergency assistance to the citizens of Tucson. The Community Service Officers assigned in Communications, staff the non-emergency lines, the Police Service Operators staff the emergency desk, and the Public Safety Dispatchers staff the radio frequencies. Each position serves a variety of responsibilities:
  - 791-COPS (791-2677) — Information only
  - 791- Police Service Operators
  - 4444 — None-Emergency line
  - Public Safety Dispatchers
3. Qwest is the 911 switch provide provider. The switch is a VESTA Plant Switch. All 911 calls are taken by the call takers and then are relayed to the appropriate dispatchers for fire, medical or police response. The center has fifteen (15) 911 lines, 25 other lines, 1-button transfer capabilities, and 12 ring-down circuits.
4. Currently the TPD has 17 call takers and 4 dispatchers. All positions provide ANI/ ALI information. TFD has 7 call takers and 12 dispatchers under General Services Management. The 12 TFD dispatch positions display ANNI/ ALI information.
5. Approximate PSAP call volume per year:

Call type	Estimated Volume		
911 wire line	390,000		
911 wireless	204,000		
Admin.	125,000		
Police Dispatched	344,000		



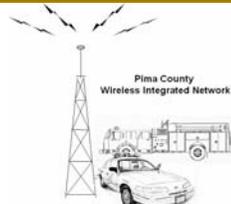
6. Communications Center Dispatch Equipment:

Equipment	Manufacturer	Model	Version	Date Installed
ANI/ ALI Switch	Plant	Vesta	2.2 Serve PK 2	3/27/06
Answer Point Equip.	Plant	Vesta		09/06
Map	Plant	MapStar	5.1	2005
CAD	Northrup Grumman	Cobal CAD	3.1	1991 w/ upgrades
Radio Console	Motorola	Centracom Elite	Year 09/07/04	
Instant Recall Recorder	Dictaphone	5713		04/17/89
Logging Recorder	CVDS	70117	06/13/05	06/30/02
Master Clock	Spectracom	8183	02/07	01/23/97

7. City of Tucson Police Department has 2 main radio TX sites for fire and police operations: Cobblestone (Catalina), and Swan Road. The backup TX site is Fire Station 12.

TPD Transmitter Sites:

Arco Tank	Catalina	PSTA	Randolph	SCMW	ST 12	ST 17	Swan	Tummamoc
	PD 1S						PD 1M	
	PD 2S						PD 2M	
	PD 3M		PD 3S					
	PD 4 M				PD 4M		PD 4M	
	PD 5 M		PD 5S					
	PD 6 S						PD 6S	
	PD 7M						PD 7M	
	PD 8M						PD 8M	
	PD 9M						PD 9M	
	PD 10M						PD 10M	
PD 800	PD 800 1-8	PD 800		PD 800-2		PD 800-1&2		PD 800 1 thru 6



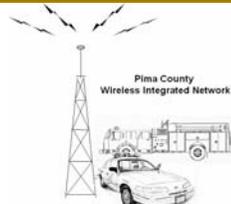
8. General Services - Radio Operations provides emergency call-taking and dispatching services for the City of Tucson. This includes answering 9-1-1 calls and transferring them to the appropriate jurisdiction. Operations provides dispatching services for the Tucson Fire Department, on a contractual basis, dispatching services for five county fire districts; the Northwest Fire District, Golder Ranch Fire District, Avra Valley Fire District, Three Points Fire District and Picture Rocks Fire District.

General Services - Radio Operations operates Tucson MEDS Control, a centralized medical dispatching service for much of Pima County. Also, the section serves as the answer point for non-emergency radio activity of other city divisions and departments. This function includes being an after-hour, weekend, and holiday contact point for citizens requesting city services.

9. TFD Transmitter Sites:

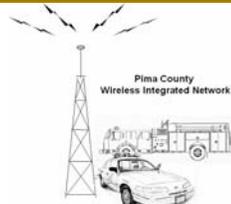
Ohio	Catalina	SS	Randolph	Valencia	ST 17	Swan	STARR PASS
FIRE 800	FIRE 1S				FIRE 800	FIRE M1	
	FIRE 2M		FIRE 2S				
	FIRE 3M					FIRE S3	
	FIRE 4M		FIRE 4S		PD 4M		
		FIRE 5S				FIRE 5M	
	FIRE 6M		FIRE 6S				
	FIRE MA						
				FIRE 10S			FIRE 10M

10. The Communications Center provides E911 services and is compliant with Wireless Location Phase II. There are eight wireless providers that the Communications Center handles.
11. The city has an extensive communications network that involves 911 PSAP operations, public safety radio voice systems, mobile data systems, CAD/ AVL, Record Management Systems, Wi-MAX and others.
12. The City of Tucson has an I-NET Fiber Optics system is a SONET network that consists of DS1, 1,000BaseT OC3, OC12, and OC48 capacities. There are approximately 42 sites that connect or plan to connect city/ county facilities, radio RF sites, mobile data, WAN-LAN Wi-Fi sites, the TPD Communications Center and the PCSD Comm.



The fiber optics network has east and west OC48 rings and OC3 and OC12 links that are configured in collapsible ring configurations to provide redundancy throughout the city of Tucson. The SONET system utilizes the Cisco 15454 multiplexer.

13. The Public Safety Communications Center is located at 4004 S Park Avenue in Tucson. It is the primary PSAP for law enforcement and fire rescue operations for the City of Tucson.
14. The fiber optics SONET network is supplemented with an analog microwave system consisting of 950 MHz, 2 GHz and 6 GHz microwave links (equipment manufacturers include Harris, Granger, and Motorola). Circuit capacity of the microwave equipment is 620 channels and 320 channels. By the end of the year TPD expects to have a new SONET microwave system installed. The equipment includes the Constellation radio manufactured by Harris and it will operate in the 6.1 GHz and 11.2 GHz frequency bands. OC 3 capacities are planned and Harris is including the Cisco 15454 SONET multiplexers. Approximately 22 links are planned.
15. Four Towers are being installed at the present time. The tower locations include:
  - Fire Station 16; 65 foot self support tower
  - Fire Station 19; 80 foot self support tower
  - Corona de Tucson; 30 foot self support tower
  - Randolph Way; 120 foot monopole tower
16. The Police Mobile Data provides service throughout the City of Tucson. It is a Motorola RD-LP system utilizing 16 channels, operating in the 800MHz band utilizing Quantar repeaters. Pad-com middle ware software controls the system. Throughput is 19kbps. There are four RF sites – Tumamac Hill (6 channels), Skyline (8 channels) and Campbell (8 channels). There are three Radio network Controllers (RNC) in the system. It operates with the Northrop Grumman (old PRC) CAD system (1989).
17. Squad cars are equipped with MDC's and 802.11b capabilities. TPD access points include Police HQ, and the four department substations. Officers can receive and transit records to the CAD system, accessing COP-Link, Automatic Field Reporting System (AFRS), CJIS, and CJIS records. The plan is to move towards 802.16 technologies. There are antennas on vehicles for voice, data, WAN, LoJack and ProNet applications.
18. The Tucson Fire Department utilizes a one-site (Catalina) 800 MHz channel for mobile data applications. There are plans to expand the system to a three channel, 800 MHz system operating from Catalina, Tumamoc Hill, and PSTA sites.

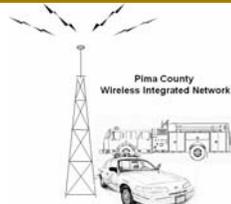


The system will have the capability to move towards the 700 MHz band. This system will be provided by IP Mobilenet system.

19. Plans are to move towards a Wi-Max 4.9 GHz system. Currently, access points are planned at all the Tucson Fire stations. Some applications will include Automatic Vehicle Locator (AVL), Records Reporting, EMT records, and Inspection reports access from the Communications Center to the vehicle. Tropos is the company implementing the project.
20. The transportation department has funded a 2.4 GHz network that can support video applications in the vehicle. The project budget is approximately \$1.7 million.
21. The Tucson Fire Department will be using a company called Comtech to install a Fire Alerting system at all city Fire Stations. Alerting will be routed either through fiber optic connectivity or through the designated RF channels. The hardware is installed, but software is due to be installed in the very near future.
22. TPD communicates from the Catalina site and the Swan site. The TPD primarily operate in the UHF band for voice communications. The TFD primarily operate from the VHF band. Radio system documentation has been forwarded.
23. TPD has a video conferencing system that connects all sites.

**Present Situation**

1. The Federal Government is providing a 1 million dollar grant to the TPD for new laboratory equipment.
2. Forensics communicates with these agencies: ATF, ICE, DEA, and FBI. There are 18 crime people on duty in a 24 hour day. It is expected that the Division will triple in size within 10 years.
3. Forensics currently can access mug shots from their hard drives but would like to access databases over the air.
4. The Communications Center's CAD system as stated previously has been in operation since 1989. There is a yearly maintenance agreement with the vendor but TPD has been performing their own upgrades and revising source-codes. The system has been upgraded to GUI/ windows standard.



**Present Problems**

1. Data Services stated that there is radio static on the consoles and causing difficulty in hearing communications.

**Future Requirements**

1. Forensics Division requires 65 portables and 14 MTCs.
2. Forensics Division would like to receive mug shots and other records through data links back to the Communications Center and the Laboratory. Wireless access to the World Wide Web is needed.
3. Data Services, Comm. Center and IT requested that a CAD and Record Management checklist be provided in preparation for a series of work-shops. Data Services plans high transfer rate for data and video applications in vehicles and CAD access with lower capacity transfer rates with Cop-Link – an automated Field Reporting System (AFRS).
4. The Department of Transportation has a funded project that will support access to an Investigative database (Cop-Link). It includes two access points and 30 to 35 MTCs. Kontron MTC will be in the vehicles. 802.16 technology using Padcom and Alvarion networking is being implemented. Planned features in vehicles include:
  - Full motion video
  - Mug shot transfers
  - Report Status
  - NCIC access
  - ACJIS access
  - Mapping, property information, aerial photos

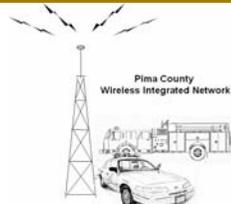
The draft of this record was sent to Linda Basham-Gilbert on March 27, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:

Linda Basham-Gilbert  
Tucson Police Department Supervisor  
4004 Park Ave  
Tucson AZ 85713

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Commo, Data Service, IT Final.doc



**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - City of Tucson Police Department  
Court Security

**File Name:** - Pima County 022806 City of Tucson Police  
Department Commo & Courts Interview Record  
Final.doc

**Date of Interview:** - February 28, 2006

**Location of Interview:** - Pima County Sheriff Department

**Persons Interviewed:** - Key Contact: Linda Basham-Gilbert

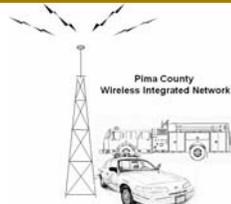
Name	Department	Phone	Email
Linda Basham - Gilbert	TPD Comm. Specialist	791 2563	Linda.Basham@tucsonaz.gov
Joe Jakoby	Tucson IT	791 4747	<a href="mailto:Joe.jakoby@tucsonaz.gov">Joe.jakoby@tucsonaz.gov</a>
Angela Spencer	Comm. Supervisor	791 2563	<a href="mailto:Angela.spencer@tucsonaz.gov">Angela.spencer@tucsonaz.gov</a>
Tom McNally	TPD Captain	791 4499 x-1050	Thomas.mcNally@tucsonaz.gov
Bill Richards	TPD Captain	791 2563	Bill.Richards@tucsonaz.gov
Marcos Lares	Comm. Supervisor	791 2563	Marcos.lares@tucsonaz.gov

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Member of the Communications Division, Captain Bill Richards and the Emergency Communications Section, as well as Joe Jakoby from IT Services. Captain Thom McNally was present since he has a background in TPD communications and is in charge of the Operations Division Downtown. Court Security is one of the responsibilities of the ODD.



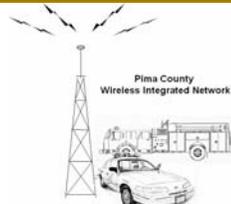
2. Operations Division Downtown (ODD) includes the captain, two lieutenants, five sergeants, and 42 officers. Assignments are patrol officers, Motors, Bikes, Headquarters Security, Walking Beat, and Community Service Officers. The Headquarters Security Unit is included in this division.
3. The TPD Communications Center is staffed with 17 call takers and 4 dispatchers. All positions provide ANI/ ALI information. TFD has 7 call takers and 12 dispatchers under General Services Management. The 12 TFD dispatch positions display ANNI/ ALI information. The Center handles 85 % of 911 calls in Tucson and Pima County.
4. Qwest is the 911 switch provider. The switch is a VESTA Plant Switch - PALLAS. All 911 calls are taken by the call takers and then relayed to the appropriate dispatchers for fire, medical or police response.
5. TPD organization structure:
  - A. Chief of Police
  - B. Chief of Staff
  - C. Deputy Chief of Police – Professional Standards Division

Operations Bureau 1

Operations Division South  
Operations Division West  
Operations Division Downtown \*  
Communications Division \*  
Force Commander  
Emergency Communications \*

Operations Bureau 2

Operations Division Midtown  
Operations Division East  
Field Support Division  
Traffic  
Tactical Support  
Air Support  
Service Dogs  
SRO  
GREAT  
Honor Guard



Specialized Response Division  
Emergency Management Section  
SWAT  
Bomb Squad  
Disaster Planning  
Special Events Support  
Special Duty

Administrative Services Bureau

Police Logistics Division  
Budget -  
Training Division

Information Services Division\*

Human Resources Division

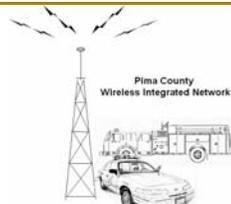
Backgrounds  
BSU  
Payroll  
Personnel  
Recruiting  
Safety Coordinator

Investigative Services Bureau

Crimes Against Persons Division  
Property Crimes Division  
Counter Narcotics Alliance  
Forensics Division

**Present Situation**

1. The TPD is responsible for security within and around the City Court Building. The County Court Building is adjacent to the City Court Building so communications is required inside this facility also. Location: 103 East Alameda.

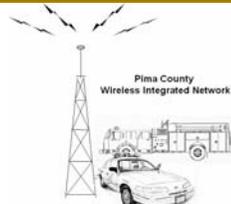


2. The TPD can be responsible for transportation to/ from the Federal Court Building, Federal Prisons and the military base. There are 2 Federal Prisons in the Tucson area: FCI Tucson operates on the UHF band, the other Federal Prison has been built but has no prisoners. In addition there is 1 State Prison: it houses as low to medium prisoners.
3. There are Five TPD Operations Divisions and plans to expand to a sixth Division on the northeast side of Tucson (1775 East Speedway).
4. City of Tucson Police Department has 2 main radio TX sites for fire and police operations: Cobblestone (Catalina), and Swan Road. The backup TX site is Fire Station 12. TPD Transmitter Sites are listed below:

Arco Tank	Catalina	PSTA	Randolph	SCMW	ST 12	ST 17	Swan	Tummamoc
	PD 1S						PD 1M	
	PD 2S						PD 2M	
	PD 3M		PD 3S					
	PD 4 M				PD 4M		PD 4M	
	PD 5 M		PD 5S					
	PD 6 S						PD 6S	
	PD 7M						PD 7M	
	PD 8M						PD 8M	
	PD 9M						PD 9M	
	PD 10M						PD 10M	
PD 800	PD 800 1-8	PD 800		PD 800-2		PD 800-1&2		PD 800 1 thru 6

**Present Problems**

1. Court Security has in building coverage problems.
2. The Sheriff Department and Police Department operate on different frequency bands and there is no radio communications within the courthouse – police are operating on VHF frequencies and the Sheriff is operating on 800 MHz frequencies.



3. The primary engineering focus should address voice radio communications – capacity, geographic wide-area service, and reliability.

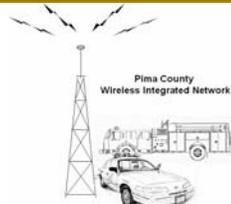
**Future Requirements**

1. Taskforces would like to have interoperability with these agencies: Federal agency, Sheriff Department, Police Department, State Police, State Alcoholic, ATF, and ICE (Immigrations Control Enforcement).
2. The Courts Unit will be a new ODD unit and there are plans to staff 7 to 8 officers in the Courts Unit.
3. The EOC is located in the County Superior Building. There is none or little radio communications capability in this building.
4. Radio Interoperability is required with the following agencies:  
Game & Fish  
FBI  
Air Force  
Immigration and Customs (ICE)
5. Automatic Vehicle Location (AVL) technology and GPS radio location technology is very important to operations and safety of personnel.
6. Request for Specifications must include an installation and test plan – turn-key services – and a training and maintenance program. This is very important for the Northrup-Gruman (PRC). CAD system and related Record Management systems.

The draft of this record was sent to Linda Basham-Gilbert on March 27, 2006.  
Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:  
Linda Basham-Gilbert  
Tucson Police Department Supervisor  
4004 Park Ave  
Tucson AZ 85713

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**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - City of Tucson Police Department

**File Name:** - Pima County 022806 City of Tucson Police  
Department Commo - Gen Serv Interview  
Record Final.doc

**Date of Interview:** - February 28, 2006

**Location of Interview:** - Pima County Sheriff Department

**Persons Interviewed:** - Linda Basham-Gilbert TPD Supervisor  
Phone: 520 791 - 2563  
Email: Linda.Basham@tucson.az.gov

Assistant Chief Kathy Robinson  
Operations Bureau 1

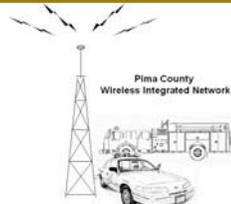
\* Representatives from TPD Commo, IT and Operations Bureau 1:

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Operations Bureau 1 consists of Operations Division South, Operations Division West, Operations Division Downtown, Communications Division, Force Commander, and Emergency Communications.
2. TPD organization structure:
  - A. Chief of Police
  - B. Chief of Staff
  - C. Deputy Chief of Police – Professional Standards Division



Operations Bureau 1 \*

Operations Division South  
Operations Division West  
Operations Division Downtown  
Communications Division \*  
Force Commander  
Emergency Communications \*

Operations Bureau 2

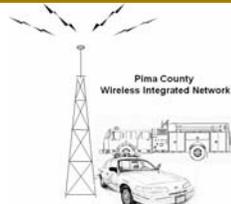
Operations Division Midtown  
Operations Division East  
Field Support Division  
Traffic  
Tactical Support  
Air Support  
Service Dogs  
SRO  
GREAT  
Honor Guard

Specialized Response Division

Emergency Management Section  
SWAT  
Bomb Squad  
Disaster Planning  
Special Events Support  
Special Duty

Administrative Services Bureau

Police Logistics Division  
Budget -  
Training Division  
Information Services Division



Human Resources Division

Backgrounds  
BSU  
Payroll  
Personnel  
Recruiting  
Safety Coordinator

Investigative Services Bureau

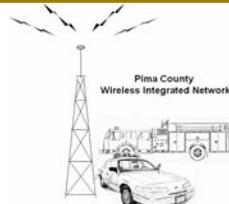
Crimes Against Persons Division

Property Crimes Division  
Counter Narcotics Alliance  
Forensics Division

3. General Services manages the Communications Division that provides Fire 911 dispatch for emergency services for the Tucson community. The division maintains reliable and cost effective voice and data communications systems to assist City departments in delivering public services.

Present Situation

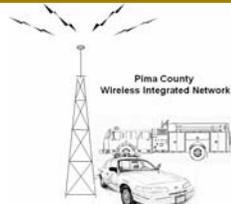
1. The Communications Division employs approximately 100 civilians whose primary responsibility is to provide emergency assistance to the citizens of Tucson. The Community Service Officers assigned in Communications, staff the non-emergency lines. The Police Service Operators staff the emergency desk, and the Public Safety Dispatchers staff the radio frequencies. Each position serves a variety of responsibilities:
  - 791-COPS (791-2677) — Information only
  - 791- Police Service Operators
  - 4444 — None-Emergency line
  - Public Safety Dispatchers
2. Qwest is the 911 switch provider. The switch is a VESTA Plant Switch - PALLAS. All 911 calls are taken by the call takers and then are relayed to the appropriate dispatchers for fire, medical or police response.



3. Currently the TPD has 17 call takers and 4 dispatchers. All positions provide ANI/ ALI information. TFD has 7 call takers and 12 dispatchers under General Services Management. The 12 TFD dispatch positions display ANNI/ ALI information.
4. City of Tucson Police Department has 2 main radio TX sites for fire and police operations: Cobblestone (Catalina), and Swan Road. The backup TX site is at Fire Station 12.

Arco Tank	Catalina	PSTA	Randolph	SCMW	ST 12	ST 17	Swan	Tummamoc
	PD 1S						PD 1M	
	PD 2S						PD 2M	
	PD 3M		PD 3S					
	PD 4 M				PD 4M		PD 4M	
	PD 5 M		PD 5S					
	PD 6 S						PD 6S	
	PD 7M						PD 7M	
	PD 8M						PD 8M	
	PD 9M						PD 9M	
	PD 10M						PD 10M	
PD 800	PD 800 1-8	PD 800		PD 800-2		PD 800-1&2		PD 800 1 thru 6

5. General Services - Radio Operations provides emergency call-taking and dispatching services for the City of Tucson. This includes answering 9-1-1 calls and transferring them to the appropriate jurisdiction. Operations provides dispatching services for the Tucson Fire Department, on a contractual basis, dispatching services for five county fire districts; the Northwest Fire District, Golder Ranch Fire District, Avra Valley Fire District, Three Points Fire District and Picture Rocks Fire District.



General Services - Radio Operations operates Tucson MEDS Control, a centralized medical dispatching service for much of Pima County. Also, the section serves as the answer point for non-emergency radio activity of other city divisions and departments. This function includes being an after-hour, weekend, and holiday contact point for citizens requesting city services.

6. TFD Transmitter Sites

Ohio	Catalina	SS	Randolph	Valencia	ST 17	Swan	STARR PASS
FIRE 800	FIRE 1S				FIRE 800	FIRE M1	
	FIRE 2M		FIRE 2S				
	FIRE 3M					FIRE S3	
	FIRE 4M		FIRE 4S		PD 4M		
		FIRE 5S				FIRE 5M	
	FIRE 6M		FIRE 6S				
	FIRE MA						
				FIRE 10S			FIRE 10M

7. The Communications Center provides E911 services and is compliant with Wireless Location Phase II. There are eight wireless providers that the Communications Center handles.

**Present Problems**

1. At the Starpass and the Marriot hotel there are in-building coverage problems for both fire and police personnel.
2. A call from the public is transferred to the call-taker to the appropriate dispatcher. If it is out of their jurisdiction it will require another transfer. This might delay the response time.



**Future Requirements**

1. AVL and IP MOBILENET data technology is needed.

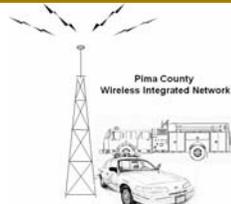
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Interviewee Name & Address:

Linda Basham-Gilbert  
Tucson Police Department Supervisor  
4004 Park Ave  
Tucson AZ 85713

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**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - City of Tucson Police Department

**File Name:** - Pima County 022706 City of Tucson Police  
Department Investigation Interview Record  
Final 4.doc

**Date of Interview:** - February 27, 2006

**Location of Interview:** - Pima County Sheriff Department

**Persons Interviewed:** - Linda Basham-Gilbert TPD Supervisor  
Phone: 520 791 - 2563  
Email: Linda.Basham@tucson.az.gov

**\* Representatives from the Investigative Services Bureau:**

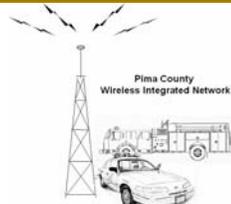
**Crimes Against People, Violent Crimes, Property Crime, Special Investigation Division,  
Counter Narcotics Alliance, Forensics, IT and City Commo**

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. The Tucson police department is charged with serving the City of Tucson public to protect life and property, prevent crime, and resolve problems. There are approximately 1,030 sworn officers and 385 non-sworn personnel in the department. TPD organization structure:
  - A. Chief of Police
  - B. Chief of Staff
  - C. Deputy Chief of Police – Professional Standards Division



Operations Bureau 1

Operations Division South  
Operations Division West  
Operations Division Downtown  
Communications Division  
Force Commander  
Emergency Communications

Operations Bureau 2

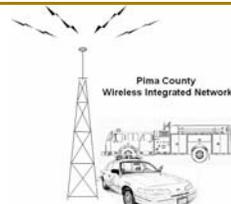
Operations Division Midtown  
Operations Division East  
Field Support Division \*  
Traffic  
Tactical Support  
Air Support  
Service Dogs  
SRO  
GREAT  
Honor Guard

Specialized Response Division

Emergency Management Section  
SWAT  
Bomb Squad  
Disaster Planning  
Special Events Support  
Special Duty

Administrative Services Bureau

Police Logistics Division  
Budget -  
Training Division  
Information Services Division



Human Resources Division

Backgrounds  
 BSU  
 Payroll  
 Personnel  
 Recruiting  
 Safety Coordinator

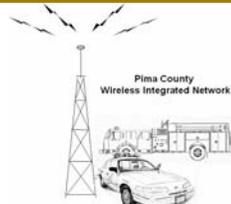
Investigative Services Bureau \*

Crimes Against Persons Division \*  
 Property Crimes Division \*  
 Counter Narcotics Alliance \*  
 Forensics Division \*

**Present Situation**

3. TPD Transmitter Sites

Arco Tank	Catalina	PSTA	Randolph	SCMW	ST 12	ST 17	Swan	Tummamoc
	PD 1S						PD 1M	
	PD 2S						PD 2M	
	PD 3M		PD 3S					
	PD 4 M				PD 4M		PD 4M	
	PD 5 M		PD 5S					
	PD 6 S						PD 6S	
	PD 7M						PD 7M	
	PD 8M						PD 8M	
	PD 9M						PD 9M	
	PD 10M						PD 10M	
PD 800	PD 800 1-8	PD 800		PD 800-2		PD 800-1&2		PD 800 1 thru 6



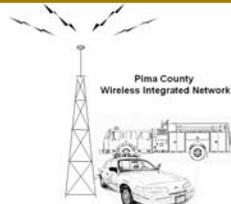
4. Currently there are approximately 1,500 portables and 700 mobiles in operation, expected radio counts should increase by 20% to 30% every five years.
5. The Primary TPD PSAP (COMMO) is located on 4004 S. Park Avenue. The Emergency Command Center is located at 270 South Stone Street.
6. All staff is equipped with cellular phones and pagers to support their operations.
7. Mobile Data communications is provided by the Motorola RD-LAP 800 MHz radio frequency system, utilizing three message switches and 16 repeater stations (8 at Campbell and Skyline, 6 at Tumamoc Hill, 1 at a southeast city-site and 1 at another southeast city-site).

**Present Problems**

1. In-building coverage is a significant problem throughout the city. University of Arizona and north of McGee Road.
2. Radio interoperability is limited with other agencies.

**Future Requirements**

1. CNA requires 100 portables.
2. SID requires 40 portables and 3 Mobile Terminal Computers.
3. CAP requires 68 portables and 8 Mobile Terminal Computers.
4. PCD requires 75 portables and internet capabilities in the field links.
5. Forensics requires mobile data technology and Mobile Terminal Computers in vehicles. Forensics needs dedicated channels or talk-groups for their missions. Evidence and Crime Lab would like small, lightweight portables, possibly head-phones. Evidence and Crime lab require text messaging capabilities including priority, non-interrupt, date and time stamp ability.
6. Video capability in vehicles is needed.



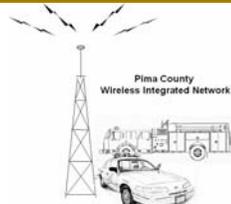
7. GPS tracking in radios and Automatic Vehicle Location technology is important for safety reasons. The coverage area should be city-wide as a minimum.
8. The ability to roam throughout a wide-area (city or county) without having to manually change channels.
9. Encryption capabilities are required in repeat and simplex (unit to unit) mode.
10. Access to Record Management in vehicles and in the field is needed. ACIC, Cp-Link, mug shots, text, warrants, criminal history, utility status, internet-access, ACJIS, and CJIS.
11. Group-call and telephone interconnect capabilities, emergency alerting from the radio.
12. Under-cover operations would benefit from "hands-free" radios in the field.
13. Suitcase radio or repeater would benefit field operations.

The draft of this record was sent to Linda Basham-Gilbert on March 27, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:  
Linda Basham-Gilbert  
Tucson Police Department Supervisor  
4004 Park Ave  
Tucson AZ 85713

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**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - **City of Tucson Police Department**

**File Name:** - **Pima County 022706 City of Tucson Police  
Department Tac - Spc Ops Interview Record  
Final.doc**

**Date of Interview:** - **February 27, 2006**

**Location of Interview:** - **Pima County Sheriff Department**

**Persons Interviewed:** **Key Contacts:**

**Linda Basham-Gilbert TPD Supervisor  
Phone: 520 791 - 2563  
Email: Linda.Basham@tucson.az.gov**

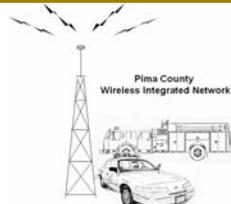
**Representatives from Field Division:** **SWAT, K-9, Air Support, Tactical and IT.**

**CTA Interviewer:** - **Harry Rote and Roscoe Mitchell**

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. The Tucson police department is charged with serving the City of Tucson public to protect life and property, prevent crime, and resolve problems. There are approximately 1,030 sworn officers and 385 non-sworn personnel in the department. TPD organization structure:
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Operations Bureau 1

Operations Division South  
Operations Division West  
Operations Division Downtown  
Communications Division  
Force Commander  
Emergency Communications

Operations Bureau 2

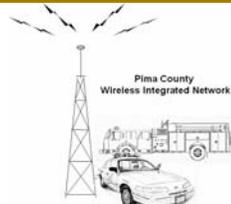
Operations Division Midtown  
Operations Division East  
Field Support Division \*  
Traffic  
Tactical Support  
Air Support  
Service Dogs  
SRO  
GREAT  
Honor Guard

Specialized Response Division \*

Emergency Management Section  
SWAT  
Bomb Squad  
Disaster Planning  
Special Events Support  
Special Duty

Administrative Services Bureau

Police Logistics Division  
  
Budget -  
Training Division  
Information Services Division \*



Human Resources Division

Backgrounds  
 BSU  
 Payroll  
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 Safety Coordinator

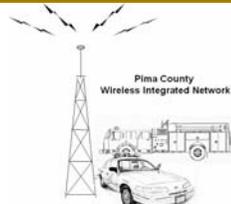
Investigative Services Bureau

Crimes Against Persons Division  
 Property Crimes Division  
 Counter Narcotics Alliance  
 Forensics Division

**Present Situation**

1. Members of the Field Support Division participated in this session:
  - The Tactical Support Section which consists of the Air Support, GREAT, SRO, Honor Guard and Service Dogs (K-9).
  - The Traffic Section which consists of Traffic Investigations, DUI, and Solo Motor Special Support.
  - The Emergency Response Section which consists of SWAT, Bombs, and Hostage Negotiations.
  
2. TPD Transmitter Sites:

Arco Tank	Catalina	PSTA	Randolph	SCMW	ST 12	ST 17	Swan	Tummamoc
	PD 1S						PD 1M	
	PD 2S						PD 2M	
	PD 3M		PD 3S					
	PD 4 M				PD 4M		PD 4M	
	PD 5 M		PD 5S					
	PD 6 S						PD 6S	



	PD 7M						PD 7M	
	PD 8M						PD 8M	
	PD 9M						PD 9M	
	PD 10M						PD 10M	
PD 800	PD 800 1-8	PD 800		PD 800-2		PD 800-1&2		PD 800 1 thru 6

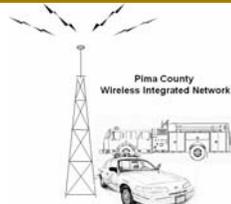
3. Currently there are approximately 1,500 portables and 700 mobiles in operation, expected radio counts should increase by 20% to 30 % every five years.
4. Air Support uses a downlink that is run by Emergency Land Management at 453MHz. The radios used are the Wulfsburg C-5000 radio (2 each in the aircraft). The radios have 350 channel capabilities. Also the crew has XTS 5000 portable radios and Mobile Terminal Commuters to support communications.

**Present Problems**

1. There is only limited ability to communicate with other agencies.
2. There are not enough common channels in the radios to support communications with others in the TPD and outside agencies.

**Future Requirements**

1. SWAT/ Special Operations would like to have three encrypted talk-groups on their radios to support Command and Hostage TAC operations. They need more reliable radios with better coverage performance. Short antennas are needed. Ideally the Section would like to have radios that have GPS location capabilities on portables, and text messaging.
2. K-9 Units would like to have paging capabilities on their radios and have the ability to scan or listen to their operational channels. It is important that interoperability capabilities with other agencies are built into the new radio network.



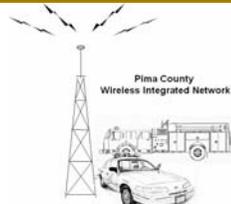
3. Traffic would like reliable radios for motorcycles and wireless capabilities (Bluetooth) in their headsets. There is a need to have the ability to access other talk groups or channels when operating on their primary talk group or channel.
4. Air Support would like a paging notification including a visual notification when the aircraft is in flight.
5. School resource officers require communications inside school buildings.
6. Wireless Bluetooth technology should be accessible by all officers.

The draft of this record was sent to Linda Basham-Gilbert on March 27, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:  
Linda Basham-Gilbert  
Tucson Police Department Supervisor  
4004 Park Ave  
Tucson AZ 85713

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**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - City of Tucson Police Department

**File Name:** - City of Tucson Police Department Patrol Interview Record Final.doc

**Date of Interview:** - February 27, 2006

**Location of Interview:** - Pima County Sheriff Department

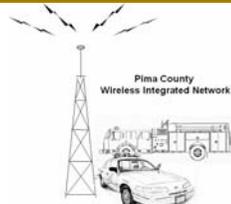
**Persons Interviewed:** - **Key Contacts:**  
Tom McNally, TPD Captain  
Bill Richards, TPD Captain  
Kathleen Robinson TPD Assistant Chief  
Linda Basham-Gilbert TPD Supervisor  
Captains & Lieutenants - Patrol Division  
IT personnel \*  
Members of the Patrol Division

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. The Tucson police department is charged with serving the City of Tucson public to protect life and property, prevent crime, and resolve problems. There are approximately 1,030 sworn officers and 385 non-sworn personnel in the department. TPD organization structure:
  - A. Chief of Police
  - B. Chief of Staff
  - C. Deputy Chief of Police – Professional Standards Division



Operations Bureau 1 \*

Operations Division South  
Operations Division West  
Operations Division Downtown  
Communications Division  
Force Commander  
Emergency Communications

Operations Bureau 2 \*

Operations Division Midtown  
Operations Division East  
Field Support Division

- Traffic
- Tactical Support
- Air Support
- Service Dogs
- SRO
- GREAT
- Honor Guard

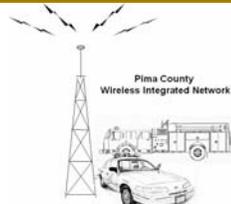
Specialized Response Division

Emergency Management Section

- SWAT
- Bomb Squad
- Disaster Planning
- Special Events Support
- Special Duty

Administrative Services Bureau

Police Logistics Division  
Budget  
Training Division  
Information Services Division \*



Human Resources Division

Backgrounds  
BSU  
Payroll  
Personnel  
Recruiting  
Safety Coordinator

Investigative Services Bureau

Crimes Against Persons Division  
Property Crimes Division  
Counter Narcotics Alliance  
Forensics Division

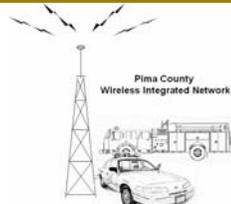
**Present Situation**

1. The TPD divisions are listed below:

Operations Downtown Division: Responsibility includes the downtown Tucson area. The area served is bounded by Speedway to the north, Euclid/railroad tracks to the east, 22nd Street to the south, and I-10 to the west. The Emergency Command Center is located on 270 South Avenue. Patrol coverage is supported from 7 a.m. to 3 p.m. After 3 p.m. the operation West assumes patrol. There are typically 10 to 15 squad cars on patrol. Including other personnel, there are approximately 100 radios in the field to support operations.

Operations Division South: Based from the Santa Cruz Substation located at 4410 S. Park Avenue, Division South is staffed with approximately 170 officers and civilians. The western border is the city limits (Valley Rd), the eastern boarder (Country Club Road), the northern border (22<sup>nd</sup> Street) and the southern border includes the city line. There are typically 60 to 70 squad cars on patrol. Including other personnel, there are approximately 150 to 200 radios in the field to support operations.

Operations Division West: Based from the Rillito Substation located at 1019 W. Prince Road. The division's geographic responsibility includes the area west of First Avenue to the city limits, north of 22nd Street to the city limits, and the northwest area of the Tucson city limits.



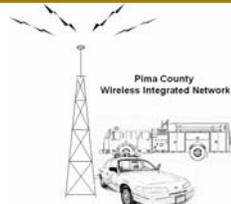
Operations Division Mid-town: Based from the Hardesty Multi-service Center sub-station located on 1100 S. Alvernon. The geographical boundaries include River Road to the north, First Avenue/Euclid to the west, Aviation Highway/Golf Links Road to the south and Craycroft Road to the east. The Davis-Monthan Air Force Base and the University of Arizona are within the division’s operational jurisdiction.

Operations Division East: Based from the Rincon police substation located just east of Harrison on Golf Links Road. This is the largest division geographically.

2. Fleet composition consists of approximately 415 marked vehicles, 5 GEM electric vehicles, 260 unmarked vehicles and 45 motors. Aircraft is not included in these numbers. All vehicles should be equipped with mobile radios. There are 3 helicopters and one fixed week vehicle.
3. TPD Transmitter Sites

Arco Tank	Catalina	PSTA	Randolph	SCMW	ST 12	ST 17	Swan	Tummamoc
	PD 1S						PD 1M	
	PD 2S						PD 2M	
	PD 3M		PD 3S					
	PD 4 M				PD 4M		PD 4M	
	PD 5 M		PD 5S					
	PD 6 S						PD 6S	
	PD 7M						PD 7M	
	PD 8M						PD 8M	
	PD 9M						PD 9M	
	PD 10M						PD 10M	
PD 800	PD 800 1-8	PD 800		PD 800-2		PD 800-1&2		PD 800 1 thru 6

4. Currently there are approximately 1,500 portables and 700 mobiles in operation. Expected radio counts should increase by 20% to 30 % every five years.



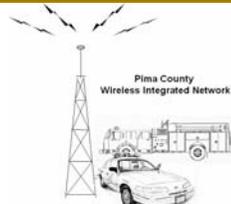
5. The Primary TPD PSAP (COMMO) is located on 4004 S. Park Avenue. The Emergency Command Center is located at 270 South Stone Street.
6. Patrol vehicles are equipped with unlicensed (2 and 5 GHz) wireless 802.11b capabilities; fixed access points are located at the TPD Headquarters and at each of the four TPD substations, providing 10BaseT Wi-Fi speeds for upload and download of records.
7. Mobile Data communications is provided by the Motorola RD-LAP 800 MHz radio frequency system, utilizing 3 message switches and 16 repeater stations (8 at Campbell and Skyline, 6 at Tumamoc Hill, 1 at a southeast city-site and 1 at another southeast city-site).

**Present Problems**

1. Coverage problems in-building – especially the larger buildings located in down-town and mid-town areas, down-town tunnels, and the main sub-station. Other locations include the Tucson Mall, Starpass Area, Hospitals, and the Air Force Base. The Houghton area, the area west of A mountain, and the west end of 36<sup>th</sup> street are coverage area problems also.

Specific coverage problems for each patrol division:

- Downtown: Problems in the (4<sup>th</sup> avenue) tunnels and bunker, the Main station especially in the lower floors.
  - South: Coverage dead spots south of A Mountain.
  - West: Coverage dead spots in the Tucson Mall, and the north-end, Hecht's.
  - Midtown: UMC, TMC (hospitals), DM Air Force, 22<sup>nd</sup> and Alvernon and HQ.
  - East: Coverage problems especially in the northern portion of their area.
2. TPD interoperability in many cases are not conducted by radio, but by cell phone communications.
  3. Battery life duration is less than a typical shift for most MTS series radios.
  4. Microphones are noisy and break often.



5. The University of Arizona operates on different frequencies and interoperability is an issue.

**Future Requirements**

1. Encryption capabilities are necessary for radios.
2. TPD plans to build-out the fixed access network system and expand 10BaseT Wi-Fi capabilities. Potentially this growth can be implemented with the TFD W-Fi plan already in place, utilizing Fire Stations, and 4.9 GHz frequency bands licensed for public safety users.
3. Additional channels to support operations and relieve congestion on channels.
4. A wide variety of radios should be made available.
5. Interoperability with local city county agencies is important.
6. Improve wide-area and in-building coverage performance.
7. The new system needs to be reliable and have redundancy and fault tolerance built into it.

**Additional Comments**

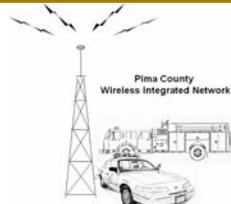
None.

The draft of this record was sent to Linda Basham-Gilbert on March 23, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:  
Linda Basham-Gilbert  
Tucson Police Department Supervisor  
270 S. Stone Avenue  
Tucson, AZ 85701

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## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

Organization/Agency Name: Tucson Police Department

Contact Name: Linda Basham-Gilbert Position: Superintendent  
Communications

Phone: 520-791-2563 Email: lbasham1@tucsonaz.gov

---

Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

**I: RADIO UTILIZATION CURRENT SITUATION**

a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

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 Page 1 of 8



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	Shift 4
Mobiles	2360					
Portables	648					
Control Stations	6					
Paging units	0					
Other Devices	0					

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

Shift issues will be discussed with the consultants, due to the number of variables which could occur.

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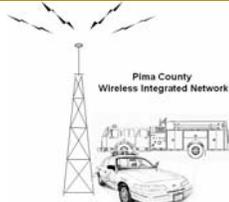
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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles		
Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars		
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

Please see attachment A

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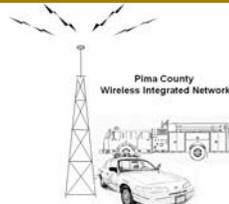
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*Attachment A*

LOGISTICS DIVISION

FLEET COMPOSITION ANALYSIS

*Current as of: February 01, 2006*

**Fleet Composition:**

- 366 fully marked Crown Vics,
- 20 Dodge Intrepids, 17 are assigned to commanders, 3 are assigned to Traffic, DUI
- 10 sport utility vehicles
- 5 pickup trucks
- 12 vans
- 5 all terrain vehicles
- 5 electric GEM vehicles
- 2 Armored Personnel Carriers
- 1 mobile command post.
- All vehicles listed above, except for the 2 Armored Personnel Carriers, are fully marked and capable of code 3 response
- TPD maintains a fleet of 20 training vehicles, although this number varies as a result of attrition.
- In the works is 1 RRT vehicle, completion expected around June, 2006 and 1 Hostage vehicle, completion expected around September, 2006.
- We're also working on the retrofitting of an old Van Tran mini bus for the RTC.
- As for our unmarked fleet, we have 180 sedans and trucks assigned to investigative and administrative positions
- 40 leased and 40 forfeitures unmarked vehicles
- TPD is currently operating 45 motorcycles, maintains 10 spares and 12 trainers... all are currently Kawasaki KZ1000 Police models

**In summary:**

- Marked: 413 sedans, SUV's, vans and trucks
- 5 Gem electric vehicles
- 260 unmarked
- 45 motors

**Grand total: 799...** does not include aircraft.

Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
4004 S Park	10	Dispatch backup radios
270 S Stone	6	Emergency backup radios

Clarifications:

\_\_\_\_\_

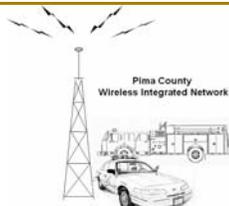
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\_\_\_\_\_

\_\_\_\_\_





Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
Radio coverage poor /Houghton area			X			
Radio coverage poor/W of A Mtn.			X			
Radio coverage poor /W end 36 <sup>th</sup> St			X			
Intentional Radio Interference		X				
Combining Freq is cumbersome			X			
In building coverage often poor			X			

- 0 : No problem identified.
- 1 : Identified problem, currently not of concern. May become a concern in the future.
- 2 : Occasionally a problem, affects some operations but is generally worked around.
- 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
- 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
- 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.





Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

Clarifications:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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### 3. Mobile Data Survey

TPD - MD 4

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

Organization/Agency Name: Tucson Police Department

Contact Name: James Wysocki Position: ISD Administrator

Phone: 791-4499 x 1411 Email: James.Wysocki@tucsonaz.gov

---

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have: Kontron and Data 911

Age: 5-new Condition: Fair - new Adequate: Data 911- No Kontrons - Yes  
Years

Mobile data functions that you currently have and use:

Computer Aided Dispatch: Yes Name of CAD system: PSI

Access to Records Management: Yes Name of RMS system: PSI

Records functions available: Yes

Field Reporting: Yes Automatic Vehicle Location (AVL): No

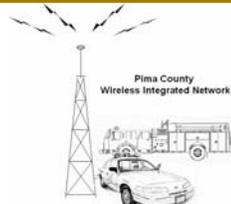
Email: Yes Outlook or web-based? Web-based

Text Messaging: Car to car: Yes Car to dispatch: Yes

Query (Person, Vehicle, Property, etc)Local: Yes State: Yes National: Yes

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 Page 1 of 4



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Other functions: Mugs, Maps, ATL's, Premise Information

Other software: CopLink, Groupwise, AFRS

Problems or concerns with your current capabilities:

Radio bandwidth to outer areas

Some underpowered and obsolete operating systems

Many wireless LAN issues

## II: FUTURE NEEDS AND DESIRES:

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

AVL information

Sharing agency to agency in car

High Speed WLAN access everywhere

## III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): Motorola RDLAP DATA TAC

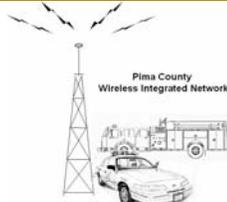
Commercial Service (Verizon, etc) : None

Wi-Fi : CISCO 802.11 ABG

Other (Describe): None



Page 2 of 4



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless <u>FIX MOUNTS</u> in Vehicles	400				
Wireless Handhelds (PDA's)			250		
AVL equipped					
Digital Pagers	1300				
Tone Voice Pagers					
Other Devices					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per day
CAD Dispatch	1000 Per day
Query (license checks, vehicle registrations, wanted persons, property checks)	2250 Per day
Car-to-car or car-to-dispatch message	22500 Per day
Status updates	9000 Per day
Emails	Capability exists unknown quantity
Field Report	300 Per day
Other	
Other	
Other	





#### 4. Computer Systems Checklist – Law Enforcement Departments

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Law Enforcement Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Law Enforcement Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. The NFPA 1221 provisions have been adopted by the Commission on Accreditation for Law Enforcement Agencies (CALEA) for CAD systems. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

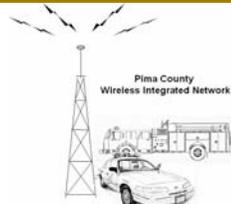
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

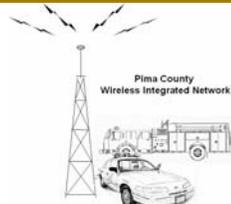
This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.



**Law Enforcement Department Checklist**

- 1) Department Name Tucson Police Department
- 2) Contact Name Linda Basham-Gilbert
- 3) Contact Telephone Number 520-791-2563
- 4) Primary Response Area Communications  
\_\_\_\_\_  
\_\_\_\_\_
- 5) Number of Personnel  
  
Current 1372 5 Year Growth 67
- 6) Number of Uniform vehicles  
  
Current 366 5 Year Growth 146 (within the next 5 yrs we are planning 2 more Divisions)
- 7) Number of Detective and radio equipped administrative vehicles  
  
Current 280 5 Year Growth 56 (based on 2 more Divisions within 5 years)
- 8) Number and description of specialized vehicles (such as SWAT, Command, Crime Scene, etc.)  
  
Description Sport Utility Vehicles  
  
Current 10 5 Year Growth 10 (based on planned annexation within 5 years / will be utilized in remote areas of the City  
  
Description Pickup Trucks



Current 5 5 Year Growth 7 (Based on 2 added Divisions)

Description Vans

Current 12 5 Year Growth 6 (Same as above)

Description All Terrain Vehicles

Current 5 5 Year Growth 7 (Same as above)

Description Electric GEM Vehicles

Current 5 5 Year Growth 2 (Same as above)

Description Armored Personnel Carriers

Current 2 5 Year Growth 2 (Same as above)

Description Mobile Command Post

Current 1 5 Year Growth 1 (Same as above)

Description Training Vehicles

Current 20 5 Year Growth Estimate 10 (Due to planned aggressive recruitment)

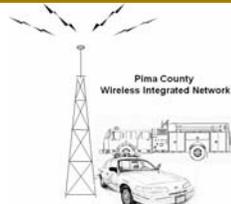
Description RRT Vehicle

Current 1 5 Year Growth 1

Description Hostage Vehicle

Current 1 5 Year Growth 1

Description Motorcycles



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

Current 67 5 Year Growth 8

In Summary :

Marked - 413 sedans, SUV's, vans and trucks

5 GEM Vehicles

260 Unmarked

45 Motors

9) Number of stations or precincts

Current 8 5 Year Growth 3

10) Number of response zones or beats

Current 32 5 Year Growth 14

11) Number of dispatched calls per year

Current 344183 5 Year Growth 17209

12) Number of traffic stops per year

Current N/A 5 Year Growth N/A

13) Number of on-view or officer initiated calls per year

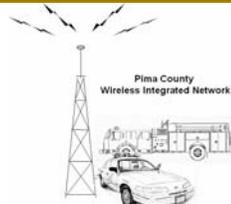
Current 33522 5 Year Growth 1676

14) Number of Other calls requiring a unit (education, assist motorist, standby, etc.)

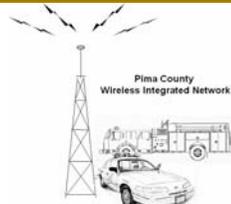
Current N/A 5 Year Growth N/A

15) Number of calls (included above) that are out of your zone.

Current N/A 5 Year Growth N/A



- 16) Number of calls (included above) that are out of Pima County.  
Current N/A 5 Year Growth N/A
- 17) Number of calls (included above ) that are out of Arizona.  
Current N/A 5 Year Growth N/A
- 18) Number of arrests per year (other than traffic citations)  
Current 52843 5 Year Growth 2642
- 19) Number of ACIC/NCIC requests  
Current 3304345 5 Year Growth 165217
- 21) Number of case report numbers issued per year.  
Current 168008 5 Year Growth 8400
- 22) Number of Mobile Data terminals  
Current 500 5 Year Growth 100
- 23) Number of station computers or others that would log-on to the network  
Current 1025 5 Year Growth 100
- 24) Number of personnel that would require an individual log-on password  
Current 1500 5 Year Growth 100
- 25) Highest typical number of officers than are on duty.  
Current 250 5 Year Growth 30 There are so many variables that it is difficult to assess.



**Provisions of NFPA 1221 and CALEA**

**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

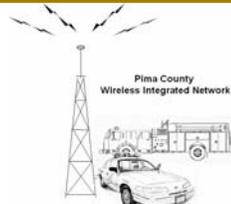
1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information



**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations
3. Assignments
4. Activities

**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

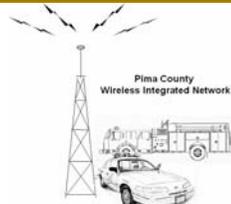
**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.



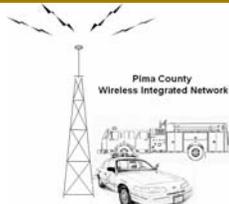
APCO International, Inc., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.

**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

- City of Tucson System Layout – Microwave Communications Division
- Police Video Link
- Radio Station frequencies
- Frequency chart
- Law enforcement frequency bands
- Tucson police department organizational chart
- Tucson Microwave system
- Microwave network
- Police transmitter locations
- Type of helicopters radio system
- Tucson police dept. communications division outside agency frequency users
- Tucson Dept. of Information Technology I-Net Fiber route
- Logistics Division Fleet Composition Analysis
- Communication Site list
- Key measures of call performance
- Block diagram – Data paths fire station alerting
- Tucson Police Dept general orders
- 2004 – 2024 projections
- Radio wish list
- 2000 Tucson demographics.pdf
- Radio wish list from Evidence
- COT post surveys sys layout.pdf
- City’s Executive Summary of 10-year plan
- Benchmarks.ppt
- Information Technology/Tucson 922-Fire Meds 2005 Stats  
Hourly call counts

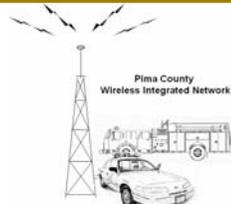
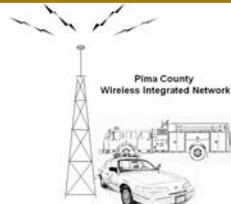


TABLE 2.2.2A Existing Interoperability

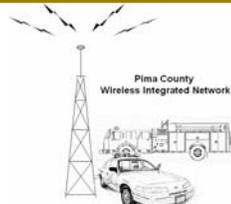
Agency Types Tucson PD	Agency Types Tucson PD	Agency Types Tucson PD
Ajo/Gibson Vol. FD		
Arivaca Vol. FD		
Avra Valley Fire District		
Corona de Tucson Fire District		
Drexel Heights Fire District		
Elephant Head Vol. FD		
Golder Ranch Fire District		
Green Valley Fire District		
Helmet Peak Fire District		
Mt. Lemmon Fire District		
Northwest Fire District		
Paseua Pueblo FD		
Picture Rocks Fire District		
Rincon Valley Fire District		
Rural Metro Fire/Southwest Ambulance		
South Tucson FD		
Three Points FD		
Tohono O' odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		
	Marana PD	
	Oro Valley PD	
	Pascua Yaqui PD	
	Pima College Dept. of Public Safety	
	Pima County OEM & Homeland Security	
	Pima County Sheriff's Dept.	
	Pima County Sheriff's Dept. - Ajo	
	Sahuarita PD	
	South Tucson PD	
	Tohono O'odham Tribal Police	
	Tucson Airport Authority PD	
	Tucson PD	
	University of Arizona Police	
		Bureau of Alcohol, Tobacco, Firearms & Explosives
		Customs and Border Protection
		Drug Enforcement Administration
		Emergency Man. & Homeland Security
		Federal Bureau of Investigation
		Immigration and Customs Enforcement
		National Park Service
		Bureau of Land Management
		U.S. Fish & Wildlife
		U.S. Forest Service
		U.S. Marshals Service
		Arizona Dept. of Public Safety
		Arizona Game and Fish





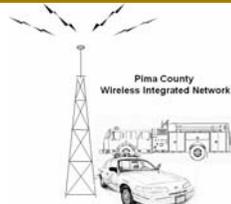
**TABLE 2.2.2C**  
**Tucson Police Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	5.0	
2	Improved Voice Radio Coverage – Central County	5.0	
3	Improved Voice Radio Coverage – Western County	5.0	
4	In-building Coverage	5.0	
5	Minimize Local Interference	3.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	5.0	
7	On-scene Fire Channels	2.0	
8	Monitored Firegrounds	1.0	
9	Emergency Alerting	1.0	
10	Workgroup Oriented Operation	4.0	
11	Voice Security	5.0	
12	Operational Boundary Transparency	4.0	
13	One System Serves All Agencies	4.0	
14	Interoperability through Dispatch	3.0	
15	Interoperability with Adjacent Counties	2.0	
16	Interoperability with State Agencies	2.0	
17	Interoperability with Federal Agencies	2.0	
18	Person Location	4.0	
19	System Control	4.0	
20	Recorded Operations	5.0	
21	Simplified User Operations	5.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	5.0	
23	Dispatch Capacity	5.0	
24	Dispatch Coverage	5.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	2.0	
26	Cross CAD Interconnection	3.0	
27	Mobile Data Criticality	5.0	
28	Vehicle Location	4.0	
29	EMS Telemetry	5.0	
30	High-Speed Broadband Service	5.0	
31	Mobile Applications	4.0	
32	Advanced Mobile Applications	2.0	
33	Access County Information	2.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	3.0	
35	Fire Station Alerting	2.0	
36	Paging over Cellular	2.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	5.0	
38	Owner-Controlled Backbone	4.0	
39	Microwave Connectivity	5.0	
40	Microwave Additional Capacity	4.0	
41	Regional Connectivity	4.0	
<b>Reliability and Availability</b>			
42	Survivability	4.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	5.0	
47	Centralized Maintenance	3.0	



**TABLE 2.2.2C**  
**Tucson Police Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	5.0	
49	Commonality of Equipment	3.0	
50	Multiple Sources	4.0	
51	Phased Implementation	4.0	
52	Tiered Subscriber Cost	5.0	
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.3 Pima County

### 2.3.1 Pima County Sheriff's Department

#### A. Current Environment

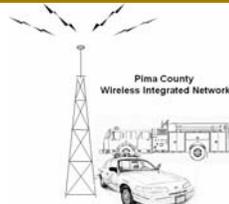
##### 1. Operational

There are four major Sheriff Bureaus:

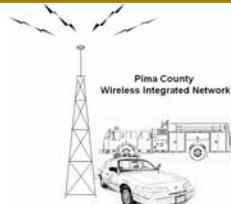
- Corrections (approximately 450 people).
- Operations, including Patrol and Special Operations (approximately 250 people).
- Investigations (150 people).
- Administration (only a small number of radios in use).
- Volunteers, command post (approximately 50 radio users).
- The Information Technology Division provides and supports all criminal justice and administrative computer applications, about 36 agencies are supported.

Several operational problems plague the current radio system:

- The County estimates that on average 64,000 calls on the Johnson 800 MHz radio system are “dropped” (or not completed) each year.
- When the “emergency” button on the Johnson radio is pressed, the caller is automatically transferred to a separate talkgroup. The people in the original talkgroup are not aware that the person has declared an emergency or that he/she can no longer hear them.
- Radio system switches 1 and 2 have a “back-up” computer; there is no provision for automatic switchover. The redundant operation is thus a manual swap with a “bump” in the operation.



- The County has a “camp on tone” added to their EF Johnson radios because users would impatiently depress the PTT button before a previous call ended to be next in line to transmit. This was resulting in call collisions. When a user tries to access a channel before a previous call is ended the camp on tone is generated by the radio and indicates the radio is still in receive mode and the user must try to transmit at a later time. This can result in repeated tries when the system is busy. This is a frustrating situation.
- Prisoner transport officers cannot talk back to Pima County on their PCSD radios when they have traveled out of the County.
- Corrections’ experiences a high rate of repair and return on portable radios. Any plastic parts tend to break.
- Long PTT delay (having to wait to speak). The average PTT is approximately 950 ms.
- No calling unit ID provided on the portables
- Manual radio site selection is entirely too complicated today. This is a safety issue. Training needs are unnecessarily high.
- Modulation / Voice levels can vary. If a radio comes in loud to dispatch, the volume may get turned down, but if a later call comes in soft, the dispatcher may not hear or understand the call. This situation could be the result of incorrect radio use.
- Missing audio on the front of calls, and general call delays experienced on the current Sheriff Radio system. “System access” needs to be better defined so everyone agrees all radios logged onto the system on the selected talk group, no matter which antenna site, will receive the entire call.
- Low speaker volume and poor sound quality on the portables, requiring the use of speaker microphones.
- To overcome a problem of missed turn off codes, double turn off codes must be sent at the end of each transmission, further delaying user access to the talk group.



Corrections officers in the Central Control Room are overwhelmed at times with radio traffic. Three officers have to monitor many functions within the Correction facility on several frequency bands and types of radios. Control room officers desire the ability to “ruthlessly” preempt during emergencies and for stuck mic conditions.

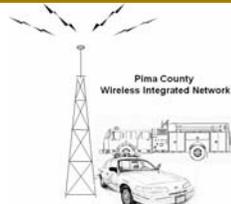
The Corrections Support organization desires 100% recording of all operations and networked recorders for access over the County network. Corrections talk groups are not currently recorded.

Investigations indicate that the media can too easily scan (eavesdrop) on law enforcement communications, however, the Department has provided radios or permission for local media to monitor radio traffic on the primary dispatch talk groups.

The Sheriff Department operates a regional SWAT team with members from all area law enforcement organizations. The Sheriff’s Department owns and provides all of the radios and equipment needed for regional SWAT team support. During tactical operations the SWAT team utilizes direct unit-to-unit communications to overcome the timing delays inherent with the trunking system. Reliable, instantaneous communication is required to assure that life or death related orders are communicated without delay or interference.

Jurisdiction is countywide with significant activity within the city and mutual aid provided to City and Town jurisdictions.

Although there are 403 corrections officers on the PCSD payroll, there are only about 240 radios available to this group. It is believed that personal assignment of a radio will decrease frequency of radio equipment repair.



The corrections staff is responsible for oversight and security of prisoners housed at the Adult Detention Center and the Juvenile Detention Center. They are also responsible for the transport of prisoners to and from Court, as well as to and from other jail/prison facilities within the state of Arizona. When the prisoner makes a court appearance, the corrections officer is responsible for the security of the prisoner while they are in court. Currently, there are 403 Corrections Officers in Pima County. Today, there are approximately 1,850 inmates. The facility is now full and has a recent growth rate of 5% per year.

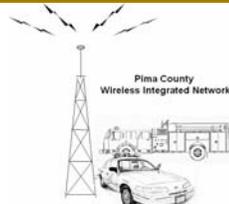
## 2. Functional

The Sheriff's Department issues take-home cars, equipped with mobiles (marked patrol units) and assigns portable radios to all commissioned personnel. All deputies have Nextel phones. All portables have speaker mics without an antenna.

Anecdotally, the users believe the busy hour for radio traffic is 5 PM to 7 PM and the busy month with regard to calls for service is September due to monsoon rains. Shifts typically run between 8-10 hours and the evening shift is usually the busiest.

The most notable coverage problems include:

- West side of the Tucson Mountains (Avra Valley)
- Northeast section of the county behind the Catalina and Rincon mountains
- Green Valley District – Arivaca road and south
- Northeast parts of Tucson
- Tohono O'odham Reservation with particular interest in coverage along SR 86.



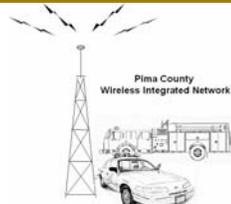
In order to get adequate coverage inside buildings, bi-directional amplifiers (BDA's) have been installed at the Adult Detention Center, the County Courthouse, Juvenile Court and Tucson Electric Park (County owned minor league baseball facility). BDA's have been strategically placed in stairwells, the basement and the holding area at the County Courthouse, as these were problem areas with weak signal or no signal. These in-building systems all share the same county 800 MHz radio network. Despite the use of BDA's for in-building coverage enhancement, there are still some problem areas in the basement and parking garage at the County Courthouse. There have been lots of dead spots in the Adult Detention Center.

Maintaining car-to car communications is sometimes a problem for Investigations officers operating in teams and following a vehicle out of the County. Direct radio distances are sometimes exceeded.

The current EFJ mobiles have a problem of reliably getting an "OK to talk grant tone" on the fleet of Kawasaki motorcycles. The problem occurs between 2000 and 6000 RPM. Riders compensate now by pulling in the clutch to talk. Both the bike and radio vendors have tried to solve the issue with no success.

Panasonic Toughbook CF18s are motorcycle mounted in the top box (aluminum). The units can only be used with the box open exposing the aircard antenna. This results in delays accessing data after stopping the bike.

Encrypted operation is generally thought of as difficult and cumbersome. Secure communications either is not available today or too problematic to use. Lacking encrypted equipment, coded communications is often used by the SWAT teams and narcotics enforcement units.



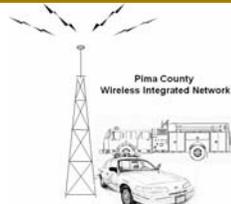
Alternative means of communication include mobile data, Nextel, and cellular, which are easy and convenient to use. The tendency is for people to start thinking of these administrative tools as tactical tools. Special operations needs to return to quality radio tools designed for the mission.

The Corrections control room currently has no way to talk directly to anyone using VHF or UHF equipment. They need some means in the future to talk with City and County agencies (TPD, Fire, Medical, etc).

The SWAT team tried to connect Peltor amplified hearing protection devices to the EF Johnson radios but this has proven unreliable.

### 3. Technical

The County system uses (40) 800 MHz non-NPSPAC channels. The County system is a four site configuration with sites at Tucson Mountain, Mt Lemmon, Elephant Head, and Summit Ridge. The Summit Ridge location functions as a directional amplifier site collecting signal and retransmitting into the eastern city area. Satellite receivers return signal via microwave to a tower at Tucson Mountain. A separate stand alone system is operated in Western Pima County with the primary site at Childs Mountain and an additional fill-in site on Ajo Mountain. This system uses three, 800 MHz trunked frequencies. Ajo Mountain is a solar site that consists of two portable radios tied back to back to rebroadcast calls received on a conventional channel to a trunked talk group. Tucson Mountain is considered the prime site with typically 75% of users registered at that site. Tucson Mountain is the least desirable existing site to move forward with because of high lease costs, high RF noise (FM broadcasters) and some coverage limitations.



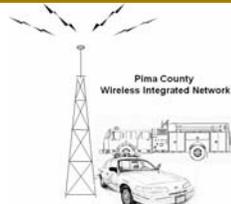
The Sheriff's Dispatch Center contains 8 positions for 9-1-1 call takers (without radio consoles), and 6 positions with radio consoles including 1 supervisor position. Each of the radio console positions is equipped with a desktop station, which acts as a back-up for the console. As a last line of defense, there are hand-held portable radios that can be distributed among the dispatchers.

Mobile data is carried on Alltel commercial. Replacement of CDPD with CDMA is proving to be a faster service. In the Arivaca area, service is no longer available. The Panasonic Toughbook 27's are reaching end-of-life. Typical outfit: Windows 98, 64 MRAM and small full hard drive. Officers take the units out of the car, not for field use, but for overnight security.

Current mobile data applications include:

- Spillman Summit Mobile CAD dispatch
- Access to law enforcement, corrections and civil records databases
- ACIC, NCIC queries
- Car to car and car to dispatch email messaging (instant messaging disabled)
- Thumbnail mugshot download

The IT center uses IBM servers that address 2,500 users. Connections to other databases and servers are made via private and leased lines. These configurations include fiber, T1, 10MB, and frame relay circuits.

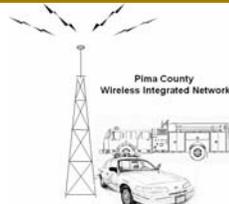


The building has dual entrances for the E9-1-1 telephone switch – these are fiberoptic lines that enter the building in two separate areas, and are independent of one another. Each path originates from a separate telephone central office.

The building (Sheriff’s Department headquarters) has a new 80 kVA Uninterruptible Power System (UPS). This is enough power to maintain power to the critical equipment (computers, consoles, E9-1-1 switch, etc.) while the emergency generator is started. The UPS provides approximately 2 hours of battery back up.

There is a “radio room” at the Sheriff’s Department HQ, even though this location is not a repeater site. This is the network hub for the County’s 800 MHz radio system serving eastern Pima County. There are two (2) E.F. Johnson switches there – each switch having a maximum capacity of 30 channels. The Johnson switches enable wide-area calls by multi-casting talkgroup calls on two or more towers. There are three primary transmit sites and one voted receiver site. If a radio call is to be broadcast system wide, it will be carried simultaneously on all four (4) towers, but transmitted on three (3) separate frequencies. The primary dispatch talk groups are set up with permanent wide area calling modules to prevent the system from determining what radios are logged onto a talk group and having to dynamically configure the wide area call for each required transmitter site. This resulted in fewer system delays required to build a wide area call.

Call data is dumped from the Johnson switches to System Manager files on a weekly basis. We need to recognize that the Johnson System Manager truncates (not rounds) call length to the nearest whole second – e.g., a 3.9 sec call is recorded as 3 sec. The radio room also houses the Orbicom switch for the six (6) consoles in the dispatch center.



#### 4. Interoperability

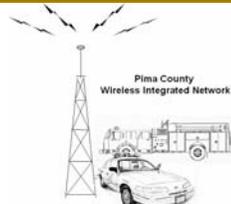
TABLE 2.3.1A shows the existing direct interoperability capabilities with other agencies for the department. Current interoperability with local agencies is only possible because of the gateway agreement and associated equipment, not because of compatible communications. Interoperability with the federal agencies again is not because of compatible equipment, but because the County permits federal operation of limited quantities of E.F. Johnson radios in order to achieve basic intercommunications.

The Corrections Bureau currently owns and operates seven (7) transport vans plus 7 or 8 cars, trucks and vans for general use. While all vehicles are provided with Pima County mobile radios, the seven prisoner transport vans are also equipped with Arizona Department of Public Safety (DPS) mobile radios for officer safety while out of the County.

The Gateway tri-band repeater at Tucson Mountain connects one of the 800 Mutual Aid channels to a VHF and UHF channel. The switch enabling the gateway is under the control of the County, DPS, and the City. The equipment is maintained by the City of Tucson.

Animal investigations needs direct communications with the health department, and the Department of Live Stock.

There are 4 ACU 1000s in use in Pima County. One is fixed at the Sheriff's headquarters/dispatch and two are mobile. The mobile units are deployed by the Tucson Fire Department and the Pima County Office of Emergency Management and Homeland Security. One is controlled by the Tohono O'odham Nation. They are currently determining how best to deploy this unit. These have yet to see much use.



Some officers wanting to monitor Fire operations must carry a second VHF radio. This involves extra cost and extra equipment to carry.

B. Positive Attributes of Current Environment

1. Operational

Mobile data computers provide advantages and disadvantages to the policing operation. Incident updates entered by the call taker often appear on the MDC before they are voiced out by the dispatcher, resulting in faster information updates. MDCs serve as a backup to an unclear voice dispatch allowing the officer a way to review the dispatch. The disadvantages are that other units can not monitor information conveyed over MDC and there is always the risk of the officer being distracted reading the computer.

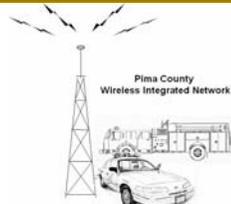
2. Functional

WI-FI hotspots are slated to be deployed during 2006 and 2007. They will be used to download service updates to computers and other reference files. Planning is taking into consideration the future possibility of transferring in car video files to a server.

3. Technical

Six organizations contribute data to the County Spillman Records systems:

- Pima County Sheriff's Department
- Pima Community College
- Sahuarita Police (Currently being added)
- Oro Valley Police
- Tucson Airport Authority
- Wilcox Police

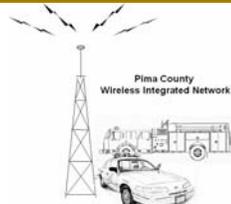


Pima County permits other agencies to utilize their records system under the County's enterprise license. User agencies must pay a per client license fee for use of the mobile data client. In addition to the contributor agencies, approximately 30 additional criminal justice agencies have view only access to the data.

The County uses fully integrated Spillman CAD and Records systems. Eleven of 15 counties in Arizona use Spillman. Pima County has an 16 year depth of incident data stored in the records system. The application will soon grow to include a new module called InSight. This will enable all Spillman users throughout the State to query the live databases of each of the other Spillman agencies and will additionally include the four non-Spillman Counties and the other non-Indian tribe Arizona Spillman users and Flagstaff Police Department. This will permit statewide sharing of data among all of the counties and several other agencies.

County mobile data started about 5 years ago using some of the Spillman applications in vehicles. The wireless network was Alltel CDPD with Sierra Wireless MP200 modems in the laptops. Officers could run CAD dispatch, and query RMS for names, download thumbnails, and exchange email. (Instant messaging is available but disabled.)

CDPD has been discontinued and the County has been simply switching to Alltel CDMA. So far, service is reported as a little faster (other interviews) but less reliable. Problems are largely blamed on low-bid Bluetree modems. Older laptops (now 5 years old running Windows 98) probably do not help the situation. The County is on a path to correct the issues and anticipates reliable operation. The County has not built a private mobile data RF infrastructure because of the high capital cost, and satisfactory service using commercial.



C. Desired Attributes of Current and Future Environment

1. Operational

Automatic Vehicle Location (AVL) would be useful in improving personnel safety for those Corrections officers assigned to prisoner transport duty.

The Corrections transportation officers need to be able to communicate along roadways from north of Phoenix to Cochise County.

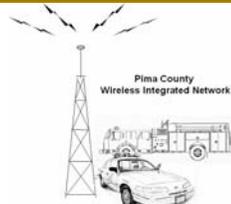
The Corrections command staff may look at changing the protocol and standard operating procedures in the Control Room to ease the strain of monitoring many functions on many radios. Having more Corrections functions on the same radio system would help. Additional talkgroups may be needed to implement these changes.

Corrections may consider changing radio policy from shift-issued portables to assigned portables for improved repair accountability.

Encrypted communications is needed for some departments and types of operations where privacy could compromise the mission. Consoles also need to be encrypted to support some groups.

“Busy Group” alert: The radios should provide some means of alerting users that the talk group is “busy” handling a critical situation and is restricted to critical traffic only such as during a 10-35 situation. Radios need some sort of visual and/or audible “busy group” indication as an alert for all users on the talk group.

Several radio equipment improvements are requested. Radios need a clearly marked emergency button with some mechanism for minimizing accidental button presses and the resulting false emergencies.



Users want simpler radio operation not requiring manual tower site selection. Radios need a more easily navigatable fleet map. Improvements to portable battery life are needed. Users need a vehicular battery charger.

Compatibility with specialized radio accessories is important. Narcotics investigators need a radio line that is compatible with the broadest selection of covert radio accessories possible. Common accessories include: Hands-free mic accessories, lighted keypad, durable radio holsters, accessory “quick disconnect”, and “remote radio disable” for lost or stolen radios.

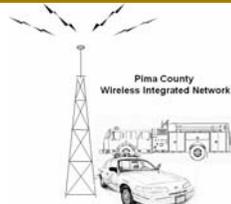
The State DPS has a conservative policy regarding information theft and access to state and national information queries using handheld or portable device. Currently, the State requires devices using a modem attached to the vehicle.

The main needs for interoperability are with:

- Southern Arizona Search and Rescue (UHF and Ham)
- Rural Metro Ambulance and Fire (VHF)
- Border Patrol (Federal VHF)
- Arizona Department of Public Safety
- Medical channels and helicopters (EMSCOM is the statewide medical channel)
- US Forest Service (Federal VHF soon)
- US Park Service (Federal P25 VHF soon)
- City of Tucson PD (now use gateway)

The motor patrol plans a shift from Kawasaki to BMW and Harley-Davidson motorcycles. Fully test selected regional system radios with the actual new bikes to avoid problems. Desire mobile radios with small remote head designed for motorcycles.

Generally, the vendor needs to offer radio gear designed, not adopted, for motorcycle use.



Mount the mobile data antenna external to any laptop box on the motorcycles for continuous airlink connection. Motor patrol wants the capability to do electronic ticket writing with printing in the field.

The SWAT Team and Air Patrol need direct radio to radio call for simplicity, reliability, preferably no access time or digital delay, simple walky-talky like operation. SWAT needs encrypted communications. Characteristics should include easy radio programming, simple key management, fast access time, and low latency. Air Patrol needs aviation grade radios. Small size is important. Any way to reduce the number of radios is significant.

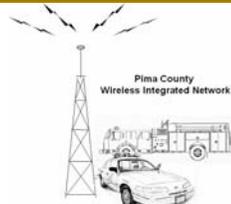
Mobile data for air operations needs to operate in the 90 – 140 MPH range. In other words, the radio modem must traverse tower sites at that speed without losing the communications session.

Because of the nature of the work, Corrections Transportation experiences radio complexities of maintaining connection to the best tower site. This group also relies on cell phones out of the county. Procedurally, the transportation office must keep track of all vehicles.

Forensics experiences too many devices (including portable radio) on the user's belt. Future technology should strive to reduce device count/size/weight.

## 2. Functional

Automatic Vehicle Location (AVL) would be useful in improving personnel safety for those Corrections officers assigned to prisoner transport duty. Because of the wide out of county transport range, at least some users will require GPS-based AVL. In addition, some users such as Investigations require location functionality down to the location of the person.



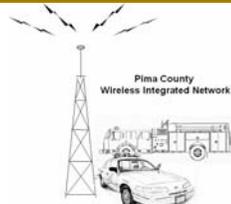
This implies that the location system must locate portable radios perhaps indoors where GPS-based systems do not work.

The entire Corrections facility must be carefully considered during the coverage design process for a regional radio system.

A County owned microwave link from Tucson to Ajo would improve communications reliability. Storms sometimes disrupt commercial line service to Ajo and disconnect the Ajo District Office from the rest of the County. Dedicated microwave will save about \$2000 per month in leased line costs. The vision for the County network (microwave, wireline or hybrid) is to provide an information highway with capacity for all County users.

Regional radio coverage design should strive to meet these objectives:

- County service area: Use county borders as the overall area. Strive for good coverage into high population areas outside of the county where Pima provides mutual aid response or has travel routes. Provide outdoor portable coverage in the “metro area” drawn on meeting map and in Ajo and Sells population areas also drawn on the map. Mobile coverage outside these portable areas. Strive for “best effort” coverage inside the Tohono O’odham reservation making full use of permitted sites.
- Coverage Level: Design for portable receives and transmit at belt level outdoors. Identify areas and design for light, medium, and heavy building areas in Tucson.
- Provide mobile data coverage countywide with emphasis on eastern Pima County, Ajo, and the major road corridors on the Tohono O’odham Nation.



The Jail campus needs to be covered by more than one tower site. If Tucson Mountain tower site fails, radio communications is lost at the jail (except for conventional unit to unit which is limited because of building design) and the entire detention center complex gets locked down. This happens one to two times a year for an hour or two.

Some training issues exist with new special operations people. Training needs to be a significant part of regional communications plans.

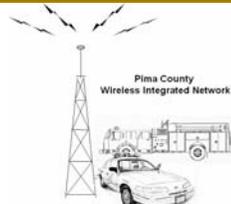
### 3. Technical

Several Mobile Data requirements are identified by users:

- Access to wants/warrants via ACIC and NCIC information
- Small (PDA-type) handheld devices, (yet compliant with conservative Arizona DPS information security requirements
- In-car mapping
- Video uplink/downlink helicopter to car
- Fingerprint scanning and AFIS search
- Transfer recorded vehicle video to office
- Transport mechanism for in-car laptop software updates
- Microsoft office suite on mobile laptops
- Replacement ruggedized laptops
- Mechanism for RF download of all types larger data files
- Private radio mobile data is preferred over commercially provided
- Messaging and e-mail

Several user radio requirements are identified by users:

- A more “deliberate” emergency button (located on the speaker mic and the radio)



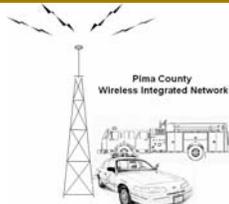
- Audible “critical group” beacon (announcing 10-35 condition)
- Calling unit ID display on portable and mobile radios
- Automatic site selection which operates reliably behind the scene
- Constant audio levels, Dispatch and unit to unit
- Improved audio quality
- Encryption for SWAT, narcotic enforcement and probably other select users
- One hour mobile hold ON time after vehicle is turned off (radio and vehicle requirement)

Several system requirements are identified by users:

- SIMPLE radio operation
- Emergency declaration on the dispatch group (current officer safety issue)
- Elimination of front end audio clipping
- Faster group call access and drop times
- Stolen radio kill
- Locking keypad preventing accidental setting changes
- Reduce radio setting routine from site and talkgroup to just talkgroup.
- Antenna mic option
- Better availability of earpiece accessories
- AVL to the vehicle level and to the portable radio
- Encryption to/from consoles
- Distinct console alert tones

Information Technology suggested several new mobile data applications:

- Dispatch mapping – dispatcher able to select responding unit based on visual map location



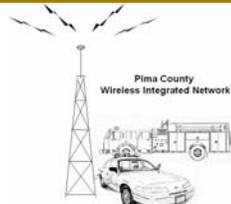
- In-car mapping – area maps, driving directions, location of incident and other units
- AVL (an integral part of mapping)
- Access to County reference files on laptop hard drive
- Ability to capture/analyze fingerprints in the field
- Email – currently run about 1200 emails per month
- Field issuance of traffic tickets with only one input cycle of incident information

Mobile data hardware network needs to be able to meet CJIS security requirements:

- Data encryption – provided by Spillman (Already meets the 2010 requirements)
- Link encryption – today provided by Alltel (Link encryption is required when criminal justice information is transmitted over commercial circuits. The Department has to maintain control of the encryption from client to server. In the case of wireless services supporting mobile data computers the Spillman application encrypts the data from server to client as a result encryption on the Alltel link would not be required. Replacing any other wireline circuit would require a private data link with encryption)
- Need to add dual authentication, login plus other – either proximity cards or biometric
- Also need to meet HIPAA security requirements

#### 4. Interoperability Matrix

TABLE 2.3.1B shows the future direct interoperability capabilities with other agencies for the department.

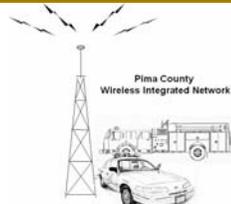


5. Attributes Matrix

Please refer to TABLE 2.3.1C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.

D. Supporting Information

1. Interview Record



CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Pima County Sheriff's Department

File Name: 022206 Pima Sheriff's Dept HQ Tour Final Interview Record.doc

Date of Interview: February 22, 2006

Location of Interview: Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

Persons Interviewed: Captain Paul Wilson, Pima County Sheriff's Department

CTA Interviewers: Cheryl Giggetts, PMP – President  
Ken Ballard, Ph.D. – Vice President  
Mike Dye, ENP – Vice President

The following points were conveyed to CTA during this interview:

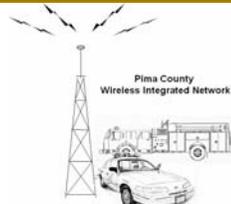
Organization and Responsibilities

1. Captain Wilson is the project manager for the Pima County Communications Upgrade, and will be CTA's primary point of contact for coordination of all activities and communications.

Present Situation

We toured the Sheriff's Department Headquarters Building with Capt. Wilson. During this tour we made the following observations and recorded information conveyed to us by Capt. Wilson.

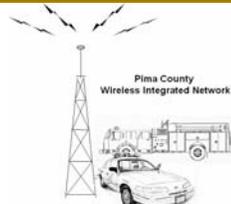
1. The Sheriff's Dispatch Center contains 8 positions for 9-1-1 call takers, 5 positions with radio consoles plus 1 supervisor position. Each of the radio console positions is equipped with a desktop station, which acts as a back-up for the console. As a last line of defense, there are hand-held portable radios that can be distributed among the dispatchers.



2. The County is using a mobile data system for low-speed, countywide operations. The IT center uses IBM servers that address 2,500 users. Connections to other databases and servers are made via T1 lines leased from the telephone company. The building has dual entrances for the E-9-1-1 telephone switch – these are fiberoptic lines that enter the building in two separate areas, and are independent of one another.
3. The building (Sheriff's Department headquarters) has a new 80 kVA Uninterruptible Power System (UPS). This is enough power to maintain power to the critical equipment (computers, consoles, E-9-1-1 switch, etc.) while the emergency generator is started.
4. There is a "radio room" at the Sheriff's Department HQ, even though this location is not a repeater site. This is the network hub for the County's 800 MHz radio system. There are two (2) E. F. Johnson switches here – each switch having a maximum capacity of 40 channels. The Johnson switches enable wide-area calls by multi-casting talkgroup calls on two or more towers. For instance, if a radio call is to be broadcast countywide, it will be carried simultaneously on all five (5) towers, but transmitted on five (5) separate frequencies. Call data is dumped from the Johnson switches to System Manager files on a weekly basis. We need to recognize that the Johnson System Manager truncates (not rounds) call length to the nearest whole second – e.g., a 3.9 sec call is recorded as 3 sec. The radio room also houses the Orbicom switch for the six (6) consoles in the dispatch center.

#### Present Problems

1. The County estimates that on average 64,000 calls on the Johnson 800 MHz radio system are "dropped" (or not completed) each year.
2. When the "emergency" button on the Johnson radio is pressed, the caller is automatically transferred to a separate talkgroup. The people in the original talkgroup are not aware that the person has declared an emergency or that he/she can no longer hear them. The caller (who declared the emergency) is likewise unaware of the fact that they are no longer speaking with their teammates. At the least, this is a confusing situation, and at worst could pose potential dangers for officers working in the field.
3. While the Johnson Switches 1 and 2 have a "back-up" computer, there is no provision for automatic switchover. Furthermore, the "back-up" computers do not mirror the data files on the primary computer. The redundant operation is thus a manual swap out of the failed unit with a new computer, which must be started with blank record files.



4. During our tour of the radio room, we noticed that the equipment area is not provisioned with a grounding halo. Furthermore, we failed to see any surge protection or surge suppression devices. A more thorough investigation should reveal the condition of the grounding system, lightning protection, and other provisions normally used at sites to prevent inadvertent damage to critical communications equipment and infrastructure.

Future Requirements

Not discussed as part of this tour.

Additional Comments

1. During our tour of the Records Management area, the point was made that there is a 10-minute response limit on all inquiries dealing with open arrest warrants.

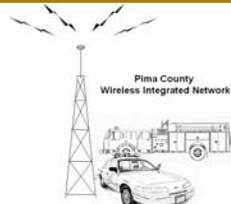
The draft of this record was sent to Captain Paul Wilson on March 28, 2006.

Corrected draft was returned to CTA Communications on March 30, 2006 by Capt. Paul Wilson.

Interviewee Name & Address:

Captain Paul Wilson  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: County Technical Staff

File Name: 022706CountyTechnicalStaff Final Interview Record.doc

Date of Interview: February 27, 2006

Location of Interview: PCSD Administration Building

Persons Interviewed: Larry Sayers, Wireless Services, Information Technology  
Brian Williams, Pima County I.T./Telecommunications  
Ted Martin, Sheriff Systems and Program Manager  
Paul Wilson, Captain Sheriff Department

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

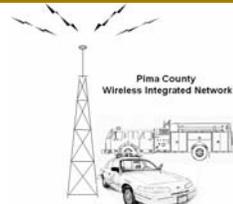
The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. Pima County Wireless Services operates and maintains the County radio systems. The Department also is responsible for cellular subscriptions for County departments other than the Sheriff, and the County wireline and microwave network.
2. Responsibilities of the Pima County Sheriff's Department Information Systems & Technology Unit include operation and expansion of the mobile data system, CAD and Records systems, network support, and wireline telephone services for the department.

Present Situation

1. The County system uses (40) 800 MHz non-NPSPAC channels. The County system is a four site multi-site configuration with sites at Tucson Mountain, Mt Lemmon, Elephant Head, and Summit Ridge. Summit Ridge location functions as a directional amplifier site collecting signal and retransmitting into the eastern city area. Satellite receivers return signal via microwave to a tower at Tucson Mountain.

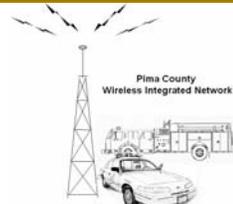


A separate stand alone system is operated in Western Pima County with the primary site at Childs Mountain and an additional fill in site on Ajo Mountain. This system uses three 800 MHz trunked frequencies. Ajo Mountain is a solar site that consists of two portable radios tied back to back to rebroadcast calls received on a conventional channel to a trunked talk group.

2. The Gateway tri-band repeater at Tucson Mountain connects one of the 800 Mutual Aid channels to a VHF and UHF channel. The switch enabling the gateway is under the control of the County, DPS, and the City.
3. Tucson Mountain is considered the prime site with typically 75% of users typically registered at that site. Tucson Mountain is the least desirable existing site to move forward with because of high lease costs, high RF noise (FM broadcasters) and some coverage limitations.
4. They currently pay about \$10K /month to Expedia for various leased lines.
5. The City has about 40 licensed but unused 800 MHz channels.
6. Current County mobile data runs on Alltel commercial service. CDPD modems are being replaced with CDMA modems. CDMA is faster.
7. Current mobile data applications:
  - Spillman CAD dispatch
  - Mobile data client in vehicles
  - Access to law enforcement, corrections and civil records databases
  - ACIC, NCIC queries
  - Car to car and car to dispatch email messaging (instant messaging disabled)
  - Thumbnail mugshot download

#### Present Problems

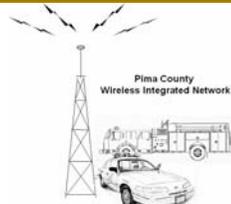
1. Problems with existing EF Johnson system:
  - Automatic site selection requires scan to be ON. Auto registration seeks only an acceptable site, not the site with the strongest signal. County instructs radio users to run auto site selection ON and scan talkgroups OFF. Common practice is to leave scan OFF resulting in poor site selection.



- Problem list detailed on pages 25 – 26 in the Aerospace report
2. Coverage problems:
    - Backside of the mountains at western national parks
    - Northeast section of the county behind the mountains
    - Green Valley District – Arivaca road and south
    - Northeast parts of Tucson

Future Requirements

1. Microwave link across county to Ajo. Save current line cost of about \$2000 per month. Storms can remove commercial line service to Ajo and disconnect county dispatch centers.
2. Coverage design requirements:
  - County service area: Use county borders as the overall area. Strive for good coverage into high population areas outside of county where Pima provides mutual aid response or has travel routes. Provide outdoor portable coverage in the “metro area” drawn on meeting map and in Ajo and Sells population areas also drawn on the map. Mobile coverage outside these portable areas. Strive for “best effort” coverage inside the Tohono O’odham reservation making full use of permitted sites.
  - Coverage Level: Design for portable Rx and Tx at belt level outdoors. Identify and design for light, medium, and heavy building areas in Tucson.
  - Provide mobile data coverage countywide with emphasis on eastern Pima County, Ajo, and the major road corridors on the Tohono O’odham Nation.
3. Correct the coverage problems marked on meeting map.
4. Vision for the County network is to provide the information highway with capacity for all County users.



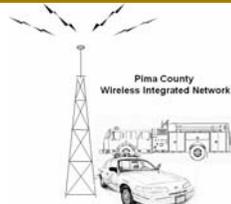
The draft of this record was sent to Captain Paul Wilson on March 31, 2006.

Corrected draft was returned to CTA Communications on April 13, 2006.

Reviewed and corrected 04/06/06	Captain Paul Wilson
Additional Corrections 04/11/06	Larry Sayers
Further corrections 04/12/06	Captain Paul Wilson

Interviewee Name & Address:  
Captain Paul Wilson, PCSO  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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Planning\interview\Final\022706CountyTechnicalStaffFINAL.doc



CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Sheriff's Department Special Operations

File Name: 022706PimaCoSheriffSpecialOperations Final.doc

Date of Interview: February 27, 2006

Location of Interview: PCSD Administration Building

Persons Interviewed: Byron Gwaltney, Sheriff's Dept. SWAT Supervisor  
David Theel, PCSD Motor Unit  
Rick Pearson, Air Support  
Paul Wilson, Captain Sheriff Department

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

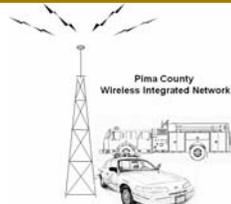
1. This interview is focused on the special equipment considerations of motorcycle officers, air support, and the SWAT team.

Present Situation

1. The SWAT team consists of members from all County and City law enforcement agencies. All communications, including tactical, is done on the Sheriff's radio system. SWAT uses one talk group on the system and one conventional channel.

Present Problems

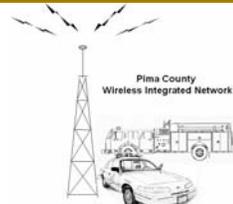
1. The current EFJ mobiles have a problem of reliably getting an "OK to talk grant tone" on the fleet of Kawasaki motorcycles. The problem occurs between 2000 and 6000 PRM. Riders compensate now by pulling in the clutch to talk. Both the bike and radio vendors have tried to solve the issue with no success.



2. Panasonic Toughbook CF18s are motorcycle mounted in the top box (aluminum). The units can only be used with the box open exposing the aircard antenna. This results in delays accessing data after stopping the bike.
3. Several problems were noted with the current Sheriff radio system:
  - PTT request seems to get lost, never get grant tone
  - Slow access time
  - Call session failures – some users do not get the call
4. Encrypted operation generally thought of difficult and cumbersome. Secure communications either is not available today or too problematic to use. Lacking encrypted equipment, coded communications is often done.
5. Some training issues exist with new special operations people. Training needs to be a significant part of regional communications plans.
6. Alternative means of communications including mobile data, Nextel, and cellular are easy and convenient to use. The tendency is for people to start thinking of these administrative tools as tactical tools. Special operations needs to return to quality radio tools designed for the mission.

#### Future Requirements

1. Motor patrol plans a shift from Kawasaki to BMW and Harley motorcycles. Fully test selected regional system radios with the actual new bikes to avoid problems.
2. Desire mobile radios with small remote head designed for motorcycles. Generally, the vendor needs to offer radio gear designed, not adopted, for motorcycle use.
3. Mount the mobile data antenna external to any laptop box on the motorcycles for continuous airlink connection.
4. Motor patrol wants the capability to do electronic ticket writing with printing in the field.
5. The SWAT Team and Air Patrol need direct radio to radio call for simplicity, reliability, preferably no access time or digital delay, simple walky-talky like operation.
6. SWAT needs encrypted communications. Characteristics should include easy radio programming, simple key management, fast access time, and low latency.



7. Air Patrol needs aviation grade radios. Small size is important. Any way to reduce the number of radios is significant.
8. Mobile data for air operations needs to operate in the 90 – 140 MPH range. In other words, the radio modem must traverse tower sites at that speed without losing the communications session.

The draft of this record was sent to Captain Paul Wilson on March 31, 2006.

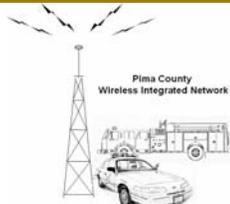
Corrected draft was returned to CTA Communications on April 20, 2006.

Interviewee Name & Address:

Captain Paul Wilson, PCSO  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

Reviewed and corrected on 04/06/06          Captain Paul Wilson

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Planning\interview\Final\022706PimaCoSheriffSpecialOperationsFINAL.doc



CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Pima County Sheriffs Department

File Name: 022706 PCSD 1 Final Interview Record.doc

Date of Interview: February 27, 2006

Location of Interview: Pima County Sherriff's Office

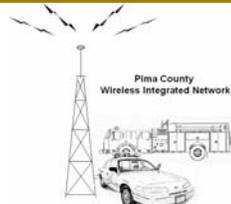
Persons Interviewed: Ten Elshof, Training Deputy  
T. Schwartz, Rincon Rural Deputy  
Mark Martinez, Foothills Deputy  
A. Spencer, Green Valley Deputy  
A. Stevens, Rincon  
J. Faircloth, San Xavier District  
E. Johnson, Green Valley/ SAR Training  
Gerald Innis, SAV Director, Crime Prevention  
George Gosnell, SAV Director Emergency Response  
Paul Wilson, Captain Sheriff Department

CTA Interviewers: David Anderson, Senior Systems Engineer  
Gary Mountcastle, Senior Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

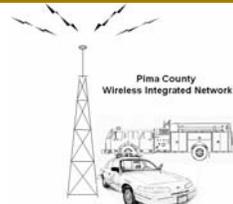
1. Various districts within the Pima County Sheriff's department were represented during this interview. Sheriff's deputies have primary responsibility for county patrol in areas east of Tohono O'odham reservation.
2. Sheriff operates a regional SWAT team with members from all area law enforcement organizations. The City also operates one SWAT team. Sheriff's department owns all of the vehicles, radios and equipment needed for the regional SWAT team support.



3. Three shifts operate from 0600-1400, 1400-2200, and 2200-0600. Various areas run between 5 and 12 units per shift. Three primary dispatch groups are used: East 1, North 1 and South 1.
4. Jurisdiction is countywide with significant activity within the city and mutual aid provided to City PD.
5. There are five Sheriff Organizations:
  - Corrections (approximately 450 people).
  - Operations, including Patrol and Special Operations (approximately 250 people).
  - Investigations (150 people).
  - Administration (only a small number of radios in use).
  - Volunteers, command post (approximately 50 radio users).

Present Situation

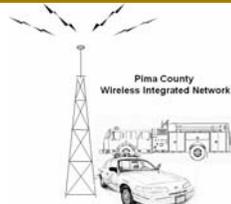
1. Sheriff issues take-home cars, equipped with mobiles and assigns portable radios. All officers have Nextel phones. All portables have speaker mics without an antenna.
2. The busy hour for radio traffic is 5 PM to 7 PM and the busy month with regard to calls for service is September due to monsoon rains. Shifts typically run between 8-10 hours and the evening shift is usually the busiest.
3. Mobile data is carried on Alltel commercial. Replacement of CDPD with CDMA is proving to be a faster service. In Arivaca area, service is no longer available. The Panasonic Toughbook 27's are reaching end-of-life. Typical outfit: Windows 98, 64 MRAM and small full hard drive. Officers take the units out of the car, not for field use, but for overnight security.
4. DPS restricts state and national queries to in-car mobiles (modem attached to car), not in fear of information theft through stolen handheld devices.
5. Current mobile data capabilities:
  - Spillman CAD dispatch
  - CAD status
  - State and national queries



- Some out-of state plate checks depending on the state. (The Department has an insufficient number of routing indicators to assign to each unit therefore some units can run out of state checks, and others can't.
6. Mobile data computers provide advantages and disadvantages to the policing operation. Incident updates entered by the call taker often appear on the MDC before they are voiced out by the dispatcher, resulting in faster information updates. MDCs serve as a backup to an unclear voice dispatch allowing the officer a way to review the dispatch. The disadvantages are that other units can not hear information conveyed over MDC and there is always the risk of the officer being distracted reading the computer.
  7. There are 4 ACU 1000s in use in Pima County. One is fixed at the Sheriff's headquarters/dispatch and two are mobile. The mobile units are deployed by the Tucson Fire Department and the Pima County Office of Emergency Management and Homeland Security. One is controlled by the Tohono O'odham Nation. They are currently determining how best to deploy this unit. These have yet to see much use.
  8. The mobile command post is equipped with a variety of radios and is manned with volunteers (no ACU1000).

Present Problems

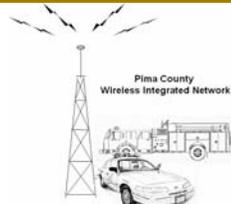
1. Specific coverage area problems were mentioned such as the remote area between Ajo and the city of Tucson (Tohono O'ohdam Nation). The attendees were invited to indicate on a county map where there are known areas of coverage problems.
2. In some areas the portable radios work and the mobiles do not and vice versa.
3. Cell phones (Nextel) are used in areas where the county system does not operate. Sometimes there may be no means of communication in certain areas such as Mt. Lemmon and Arivaca.
4. Modulation / Voice levels can vary. If a radio comes in loud to dispatch, the volume may be turned down but if another call comes in that is soft, the dispatcher may not hear or understand the call. This situation could be the result of poor talking techniques.
5. Missing audio on the front of calls, and general call delays experienced on the current Sheriff radio system.



6. Laptops (Toughbooks) are at the end of their lifespan. They are still using Windows 98 operating system and they are not expandable to handle modern applications.
7. Consoles are not equipped for encryption.
8. Some officers wanting to monitor Fire operations must carry a second VHF radio (extra equipment to carry and cost).

Future Requirements

1. Radio requirements:
  - A more “deliberate” emergency button (located on the speaker mic)
  - Audible “critical group” beacon (announcing 10-35 condition)
  - Calling unit ID display on portable and mobile radios
  - Automatic site selection
  - Constant audio levels, Dispatch and unit to unit
  - Improved audio quality
  - Encryption for SWAT and probably other select users
  - One hour mobile hold ON time after vehicle is turned off (radio and vehicle requirement)
2. System Requirements:
  - Emergency declaration on the dispatch group (current officer safety issue)
  - Elimination of front end audio clipping
  - Faster group call access and drop times
  - Stolen radio kill
  - Locking keypad preventing accidental setting changes
  - SIMPLE radio operation
  - Reduce radio setting routine from site and talkgroup to just talkgroup.
  - Antenna mic option
  - Better availability of earpiece accessories
  - AVL to the vehicle level and to the portable radio
  - Encryption to/from consoles
3. Mobile data requirements
  - In-car mapping
  - Video uplink/downlink helicopter to car
  - Fingerprint scanning and AFIS search



- Transfer recorded vehicle video to office
  - Transport mechanism for in-car laptop software updates
  - Microsoft office suite on mobile laptops
  - Replacement ruggedized laptops
  - Mechanism for RF download of all types larger data files
  - Private radio mobile data is preferred over commercially provided
  - Messaging and e-mail
4. The main needs for interoperability are with:
- Southern Arizona Search and Rescue (UHF and Ham)
  - Rural Metro Ambulance and Fire (VHF)
  - Border Patrol (Federal VHF)
  - DPS (have County radios)
  - Medical channels and helicopters (EMSCOM is the statewide medical channel)
  - US Forest Service (Federal VHF soon)
  - US Park Service (Federal P25 VHF soon)
  - City of Tucson PD (now use gateway)
5. Some number of satellite phones for use on Mt Lemmon and Arivaca.

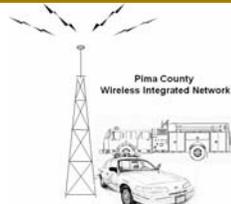
The draft of this record was sent to Captain Paul Wilson on March 31, 2006.

Corrected draft was returned to CTA Communications on April 11, 2006.

Captain Paul Wilson  
1750 E. Benson Highway  
Tucson, Arizona 85714

Reviewed and corrected 04/06/06                      Captain Paul Wilson

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FINAL.doc



CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Information Technology

File Name: 022806InformationTechnology Final.doc

Date of Interview: February 28, 2006

Location of Interview: PCSD Administration Building

Persons Interviewed: Ron Herring, PCSD Network Manager  
Shannon Gwaltney, PCSD IST Database Administrator  
Jessica DeStefano, PCSD Information Systems Coordinator  
Ted Martin, Systems and Program Manager  
Mike Sacco, Lieutenant Sheriff's Department  
Paul Wilson, Captain Sheriff's Department

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

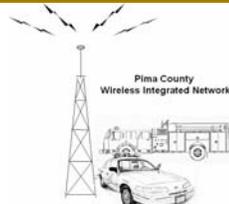
The following points were conveyed to CTA during this interview:

Organization and Responsibilities

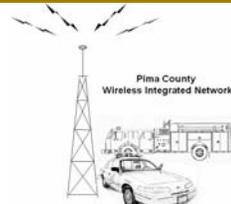
1. The Information Technology Group provides and supports all criminal justice and administrative computer applications. About 36 agencies are supported.

Present Situation

1. Six organizations contribute data to County Spillman Records systems:
  - Pima County Sheriff's Department
  - Pima Community College
  - Sahuarita Police
  - Oro Valley Police
  - Tucson Airport Authority
  - Wilcox Police



2. Pima County permits other agencies to utilize their records system under the County's enterprise license. User agencies must pay a per client license fee for use of the mobile data client. In addition to the contributor agencies, approximately 30 additional criminal justice agencies have view only access to the data.
3. The County uses fully integrated Spillman CAD and Records systems. The City has gone with PRC for Police and ADSI for Fire. Eleven of 15 counties in Arizona use Spillman. Pima County has a 16 year depth of incident data stored in the records system. The application will soon grow to include a new module called InSight. This will enable all Spillman users throughout the State to query the live databases of each of the other Spillman agencies and will additionally include the four non-Spillman Counties and the other non-Indian tribe Arizona Spillman users and Flagstaff Police Department. This will permit statewide sharing of data among all of the counties and several other agencies.
4. County mobile data started about 5 years ago using some of the Spillman applications in vehicles. The wireless network was Alltel CDPD with Sierra Wireless MP200 modems in the laptops. Officers could run CAD dispatch, and query RMS for names and download thumbnails, exchange email. (Instant messaging is available but disabled.)
5. CDPD has been discontinued and the County has been simply switching to Alltel CDMA. So far, service is reported as a little faster (other interviews) but less reliable. Problems are largely blamed on low-bid Bluetree modems. Older laptops (now 5 years old running Windows 98) probably do not help the situation. The County is on a path to correct the issues and anticipates reliable operation. The County has not built private mobile data RF infrastructure because of the high capital cost, and satisfactory service using commercial.
6. WI-FI hotspots are slated to be deployed during 2006 and 2007. They will be used to download service updates to computers and other reference files. Planning is taking into consideration the future possibility of transferring in car video files to a server.
7. The County has not built private mobile data RF infrastructure because of:
  - High capital cost of private radio
  - Satisfactory commercial service
  - Pre-approved security certification from DPS

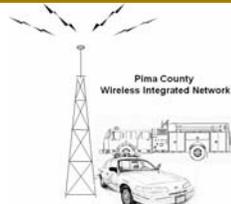


Present Problems

1. Connection reliability problems during transition to CDMA service.

Future Requirements

1. New applications desired:
  - Dispatch mapping – dispatcher able to select responding unit based on visual map location
  - In-car mapping – area maps, driving directions, location of incident and other units
  - AVL (an integral part of mapping)
  - Access to County reference files on laptop hard drive
  - Ability to capture/analyze fingerprints in the field
  - Email – currently run about 1200 emails per month
  - Field issuance of traffic tickets with only one input cycle of incident information
2. Hardware network needs to be able to meet CJIS security requirements:
  - Data encryption – provided by Spillman (Already meets the 2010 requirements)
  - Link encryption – today provided by Alltel (Link encryption is required when criminal justice information is transmitted over commercial circuits. The Department has to maintain control of the encryption from client to server. In the case of wireless services supporting mobile data computers the Spillman application encrypts the data from server to client as a result encryption on the Alltel link would not be required. Replacing any other wireline circuit would require a private data link with encryption)
  - Need to add dual authentication, login plus other – either proximity cards or biometric
  - Also need to meet HIPA security requirements



The draft of this record was sent to Captain Paul Wilson on April 3, 2006.

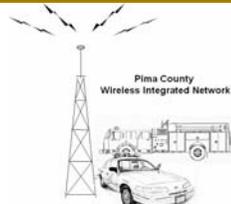
Corrected draft was returned to CTA Communications on April 7, 2006.

**Interviewee Name & Address:**

Captain Paul Wilson, PCSO  
Sheriff  
Pima County Sheriff's Office  
1750 E. Benson Highway  
Tucson, AZ 85714

Reviewed and corrected on 04/06/06      Captain Paul Wilson

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CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Corrections

File Name: 022806Corrections Final Interview Record.doc

Date of Interview: February 28, 2006

Location of Interview: PCSD Administration Building

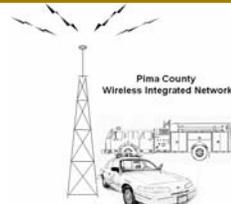
Persons Interviewed: Keith Cook, Judicial Security C.O.  
R. Mayhew, PCADC Commander Main Jail Tower  
N. Gomez, PCADC Corrections Sergeant  
Mark Boyce, PCADC Corrections Sergeant  
James Anderson, PCADC  
Darlene Gelibert, Corrections  
Lowell Glenn, Corrections  
Thomas Eichorst, Corrections  
Mike Sacco, Lieutenant Sheriff's Department  
Paul Wilson, Captain Sheriff's Department

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. Support Operations includes kitchen, supplies, records, medical, environmental safety, and programs.
2. The organization under Security includes the control room, main jail tower, main jail east, main jail west, minimum security facility, and transportation.



Present Situation

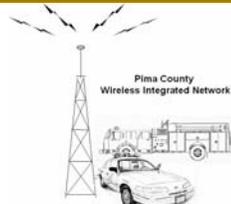
1. All operations use the County 800 MHz radio system. Because of their southwestern location, all groups primarily keep their radios set to work on Tucson Mountain site. (This is primarily because the jail building BDA systems works off the Tucson Mountain site).
2. Corrections control room monitors all radio channels in use by the corrections groups. EF Johnson Tracer consoles is provided.
3. The Facilities group does not use 800 MHz radio for workgroup communication, but instead uses Motorola “family radio” type walky-talkies for daily work coordination.
4. Judicial security reports that there are in-building dead spots in two judicial buildings and in an underground parking lot.

Present Problems

1. Low speaker volume and poor sound quality on the portables.
2. Because of the nature of the work, Transportation experiences most of the radio complexities of maintaining connection to the best tower site. This group also relies on cell phones out of the county. Procedurally, the transportation office keeps track of all vehicles.
3. Forensics: Too many devices (including portable radio) on the user’s belt. Strive to reduce device count/size/weight.
4. Several comments were recorded regarding in-building coverage dead spots.
5. If Tucson Mountain tower site fails, radio communications is lost at the jail (except for conventional unit to unit which is limited because of building design) and the entire detention center complex gets locked down. This happens one to two times a year for an hour or two.

Future Requirements

1. Desire speaker, microphone, and antenna accessory devices in hopes of better coverage and sound quality.



2. When a unit declares an emergency, it is difficult in the control room to determine who it is. Emergencies should be routed to the console or monitor radio that is used for that work group.
3. Need some means in the future to talk with City and County agencies (TPD, Fire, Medical, etc). The control room currently has no way to talk directly to anyone using VHF or UHF equipment.
4. Provide user ID display on the portables so that management can identify the caller.
5. Vehicular portable radio chargers.
6. Rugged radios and accessories that can survive the rough environment of 24/7 shared usage. Larger knobs for gloved operation. Clearly identified emergency button.
7. Control room needs the ability to "ruthlessly" preempt during emergencies and for stuck mic conditions.
8. The Support organization desires the ability for 100% recording of all operations and networked recorders for access over the County network.

The draft of this record was sent to Captain Paul Wilson on April 3, 2006.

Corrected draft was returned to CTA Communications on April 7, 2006.

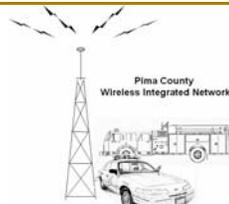
Interviewee Name & Address:

Captain Paul Wilson, PCSO  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

Reviewed and corrected 04/06/06

Captain Paul Wilson

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CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Pima County Sheriff's Department  
Corrections Command Staff

File Name: 022406 PCSD Corrections Staff Final Interview  
Record.doc

Date of Interview: February 24, 2006

Location of Interview: Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

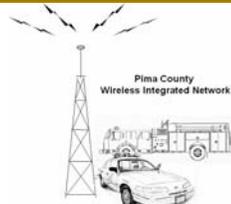
Persons Interviewed: Captain Paul Wilson  
Corrections Lt. Richard Gibbons  
Corrections Lt. Mark Boyce  
Corrections Lt. India Davis  
Corrections Lt. Mike Schlucter  
Corrections Lt. Alan Remick  
Corrections Lt. Rod Mayhew

CTA Interviewers: Cheryl Giggetts, PMP – President  
Ken Ballard, Ph.D. – Vice President

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. The corrections staff is responsible for oversight and security of prisoners housed at the Adult Detention Center and the Juvenile Detention Center. They are also responsible for the transport of prisoners to and from Court, as well as to and from other jail / prison facilities within the state of Arizona. When the prisoner makes a court appearance, the corrections officer is responsible for the security of the prisoner while they are in court.
2. Currently, there are 403 Corrections Officers in Pima County. Ten years ago, the Adult Detention Center housed approximately 1,000 prisoners.

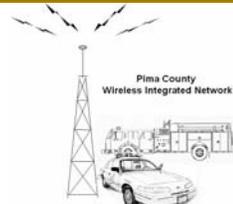


Today, there are approximately 1,850 inmates. With this prisoner population, the facility is now full. With a recent growth rate of 5% per year, there is a concern about future expansion and the capability of the current staff to cope with cramped quarters.

3. Transportation needs extend from north of Phoenix to Cochise County.
4. Within the Adult Detention Center there is a Central Control Room, where three (3) officers monitor activity within the facility, operate doors connecting halls and prisoner areas, and dispatch assistance upon request or when necessary.

Present Situation

1. PCSD Corrections staff uses the E. F. Johnson 800 MHz trunked radio system as their primary means of voice communications.
2. In order to get adequate coverage inside buildings, bi-directional amplifiers (BDA's) have been installed at the Adult Detention Center, the County Courthouse and at the Juvenile Court. BDA's have been strategically placed in stairwells, the basement and the holding area at the County Courthouse, as these were problem areas with weak signal or no signal. These in-building systems all share the same county 800 MHz radio network.
3. Portable (hand-held) radios are individually assigned to commanders, judicial security Corrections officers, sergeants, transportation officers, lieutenants and captains. All other officers must share radios, where the units are assigned to specific functions or areas within the facility (e.g., the North Tower). Although there are 403 corrections officers on the PCSD payroll, there are only about 240 radios available to this group.
4. All portable radios are provided with a standard holster and with a public safety lapel speaker/microphone. The antenna is attached to the radio, and not to the lapel speaker/mic. For officers assigned court duty, an earpiece is attached to the lapel speaker/mic to substitute for the external speaker. Individually assigned radios are also supplied with a spare battery and a desk charger. Ample supplies of spare batteries are stored for use with the shared radios. Gang chargers (accommodating 6 radios per unit) are provided to keep the batteries fresh and ready to deploy on the next shift.
5. The Adult Detention Center is equipped with a "Man Down" system. Each corrections officer while assigned to an inmate housing unit is provided with a sensor (a separate apparatus), which he/she wears during their shift.

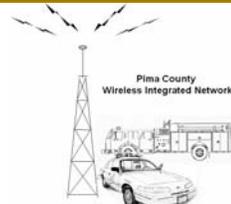


If the officer is in a horizontal position (lying down for whatever reason), the sensor detects this condition and the Man Down system relays a distress signal. The system then turns on a video camera in the vicinity of the last place where the officer was known to have been upright. The video camera can then be remotely monitored from the Central Control Room, and appropriate action taken.

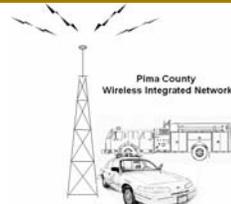
6. The Corrections Bureau currently owns and operates seven (7) transport vans plus 7 or 8 cars, trucks and vans for general use. While all vehicles are provided with Pima County mobile radios, the seven prisoner transport vans are also equipped with Arizona Department of Public Safety (DPS) mobile radios. These AZ DPS radios enable the PCSD officers to call for help if they are faced with an emergency, such as a vehicle break-down, while they are out of the County. Transportation officers are also provided with Nextel phones for additional communications redundancy.
7. The Central Control Room is provisioned with radio consoles and video monitors, and serves as the hub of the Adult Detention Center. PCSD assigned staff monitor the five (5) primary corrections operations/tactical channels (talk-groups on the County's 800 MHz radio system). They also try to monitor all other groups that work within the detention center, such as Facilities and Custodial crews, although these groups do not use the same radios as PCSD.

#### Present Problems

1. The original D-ring holders for the portable radios were plastic – they were prone to snap off of the radio, leaving the officer with no way to keep it on his belt. All of these devices have been disposed, and all officers have subsequently been provided holsters for their portables.
2. The Corrections Division has experienced a high rate of repairs and maintenance for the pool of shared portable radios over the life of the present system (6 years).
3. Despite the use of BDA's for in-building coverage enhancement, there are still some problem areas in the basement and parking garage at the County Courthouse. There are also some isolated spots that have poor coverage within the building at above grade level.
4. There have been lots of dead spots in the Adult Detention Center. The County is aware of the problem and has been working on making improvements through the use of BDA's inside the facility. Coverage has, in fact, gotten better, but some dead spots do remain.



5. The three officers that work in the Central Control Room are overwhelmed at times with radio traffic. In addition to the 5 “channels” (talk-groups) that they monitor on the Sheriff’s 800 MHz radio system, they also try to monitor Facilities and Custodial staff. The problem is that the Facilities maintenance staff use “business” radios, and these frequencies are not programmed into the Control Room. Facilities management and the internal custodial staff carry conventional radios operating in a different frequency band (not 800 MHz). Communications are monitored on portable radios assigned to the control room. The communications procedure is cumbersome for the people who work in the Control Room and who are already in a stressful environment.
6. According to the officers who work in the Control Room (and confirmed by all other users in the jail facility), the current radio system (E. F. Johnson 800 MHz) generates an unacceptably high number of “busies” when Corrections officers attempt to access one of the assigned 5 talk-groups (channels). The problem is exacerbated by the apparent “hang time” at the end of a call, where it takes the system a full second to clear the channel after the caller has unkeyed his radio. Because the E. F. Johnson system has an apparent software bug, queuing is disabled throughout the system. This means that the automatic call-back function does not work, so the users must initiate each call with a push-to-talk (PTT). The County had a “camp on tone” added to their EF Johnson radios because users would impatiently depress the PTT button before a previous call ended to be next in line to transmit. This was resulting in call collisions. When a user tries to access a channel before a previous call is ended, the camp on tone is generated by the radio indicating that the radio is still in receive mode and the user must try to transmit at a later time. This can result in repeated tries when the system is busy. This is a frustrating situation.
7. During a recent exercise, dubbed “Operation Southern Exposure”, a variety of problems were encountered when participating officers (from various departments and agencies) attempted to communicate within the Adult Detention Center. A Pima County Sheriff’s deputy (not a Corrections officer) could not talk on his 800 MHz radio back to his home talk-group when he was inside the jail facility. However, Corrections officers had no problem in using their radios in the same location. The deputy had exactly the same radio as the Corrections staff carries, but he had failed to put the radio in “scan” mode so that it would automatically switch to the site supported by the building BDA system. This is another quirk with the current 800 MHz system – generally, PCSD deputies who work outside the jail and courthouses do not use the scan function in their radios against the advice of technical staff and contrary to their training (due to problems with the algorithms employed in the E. F. Johnson software).

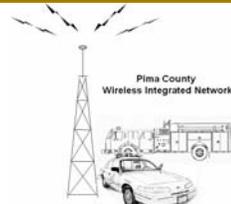


Inside the Corrections facility, assigned officers have their radios switched to the Tucson Mountain site because this is the only site the BDA system works with. The radios do not need to switch between sites.

8. Other problems discovered inside the Adult Detention Center during Operation Southern Exposure included the inability of participants to receive text messages, Nextel phones did not work, and calls from inside the Infirmary could not be completed (dead spot). There were frequent times when radio users were “stepping on” each other’s calls, causing talk group congestion and delaying the completion of potentially critical communications.
9. In the long hallways connecting buildings at the Adult Detention Center, Corrections officers have to change “frequencies” (talk-groups) up to three times as they move about the facility. This can be a potential problem when they are escorting prisoners from building to building, since changing the channel setting on their radio is a manual function and takes their attention for a few seconds. This is a procedural problem.
10. It has been noted that the local Fire Department does not use the County’s 800 MHz radio system for their communications, but operate with conventional radios in lower frequency bands. PCSD Corrections staff have observed that Firefighters cannot use their radios inside the Adult Detention Center – it is one big dead spot for their equipment. Again, this could pose a serious problem should there be a fire or other emergency inside the facility where assistance from Fire/Rescue is needed.
11. Transportation officers cannot talk back to Pima County on their PCSD radios when they have traveled out of the County. This is why they have been assigned the Nextel phones, which are capable of roaming statewide.

#### Future Requirements

1. The Corrections command staff may look at changing the protocol and standard operating procedures in the Control Room. During heavy traffic periods, it is often the case that one of the three officers assigned to this duty has a disproportionate amount of traffic to monitor. By sharing duties between the officers, the work load can be equalized, which would in turn reduce the stress. To achieve this, the work would be distributed on some basis other than the current assignments where they segregate buildings and towers – i.e., each person is currently assigned responsibility for groups according to location in the facility.



How this is to be done in the future is to be determined. An expansion of the possible number of talk-groups used by Corrections would be helpful in accommodating the possible changes. A new radio system should accommodate more talk-groups.

2. It may turn out that Control Room will require more than three officers to adequately monitor the corrections facility. While this is primarily a staffing issue, a new radio system will have to be equipped according to the future staff levels in this area.
3. Considering the high rate of repair and maintenance on shared portable radios, it might be more cost-effective (over the long run) for the County to purchase and assign portables to individual Corrections officers throughout the department.
4. Automatic Vehicle Location (AVL) would be useful in improving personnel safety for those Corrections officers assigned to prisoner transport duty. By monitoring the location of the transport vans from the Transportation Office, command staff will have continuously updated information, which could be critical in an emergency situation where the transportation officers cannot make radio calls for help.

Additional Comments

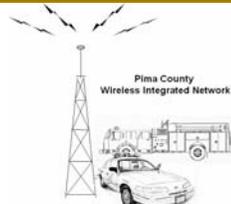
1. There was a question early in the interview session concerning the need for assigned personnel to monitor the progress of the radio project. Captain Wilson responded that the Corrections command staff did not have to have an individual assigned for the life of the project. However, Corrections command staff are encouraged to continue their participation since they contribute valuable input that needs to be included in the overall requirements for the future radio system.

The draft of this record was sent to Lt. Richard Gibbons on April 5, 2006.

The corrected draft was returned to CTA Communications on April 6, 2006 by Captain Paul Wilson and Corrections Lieutenant Richard Gibbons.

Interviewee Name & Address:  
Corrections Lt. Richard Gibbons  
Adult Detention Center  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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## 2. Radio Usage Form

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

### CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** Pima County Sheriff's Department

**Contact Name:** Lt. Mike Sacco

**Position:** Communications Section

**Phone:** (520) 741-4879

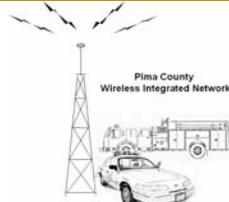
**Email:** mike.sacco@sheriff.pima.gov

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Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

#### I: RADIO UTILIZATION CURRENT SITUATION

- a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.
- b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

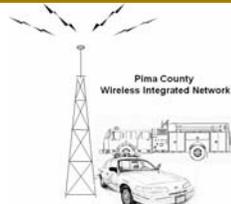
Radio Usage Information Survey  
 February 7, 2006

A	B	C	D	E	F			
Radio Units	Inventory				Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	Encrypted Summit Mobile - 43		Tsn Patrol	~45	~62	~71	n/a	
	Summit Mobile - 412		Jail		21	21		
	Total - 455		Ajo	3	7	4		
Portables	Ascend Portable - 2		Tsn Patrol	~45	~62	~71	n/a	
	Avenger Portable - 1024		Jail	74	146	90		
	Encrypted Viking Portable - 106							
	Total - 1132		Ajo	4	12	5		
Control Stations	Summit Mobile Base Stations - 41			n/a	n/a	n/a	n/a	
Paging units	Voice pagers are utilized to dispatch fire and EMS in Ajo and Why. Unknown number of pagers on the system.							
Other Devices	n/a							

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

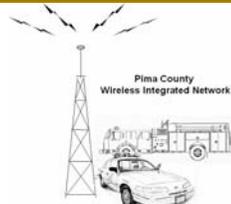
- Reference shift information, we have an additional 190 commissioned personnel, each issued a portable radio, who work M-F, 0800-1700, and not included in the data presented. There are additionally 45 other radios assigned to members of non-Pima County law enforcement agencies. These users are also unaccounted for.
- Tucson Patrol shift info was derived from total current personnel per shift for all districts (except Ajo) and then multiplied by 67% to account for days off. The total also reflects the total number of authorized posts per shift at the Adult Detention Center. The numbers for shift 2 at the jail include approximately 50 posts that work 8-5 spanning portions of shifts 2 and 3. In our current system design jail communications all originate on the Tucson Mountain Site.
- All radios are in the 800 MHz frequency band and function on our existing EF Johnson trunked system.



4. The numbers of units illustrated above reflect Pima County Sheriff's Department users only. A complete inventory of portable and mobile radio equipment is attached. The inventory includes descriptions of radio equipment assigned to other County departments and other non-Pima County law enforcement agencies. It is anticipated that these users will ultimately be brought on to the new PCWIN system after its initial deployment for public safety. Capacity for the PCWIN design should take this into account.

**Check the type of vehicles that require radios and provide a quantity if possible.**

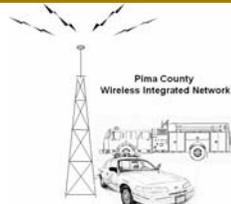
Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	n/a	
Water Tender	n/a	
Pumper/ Engine	n/a	
Ladder Truck	n/a	
Ambulance	n/a	
Patrol Vehicles	316 Mobiles	yes
Jail Transport	21 Mobiles	Yes
Special Ops		Incl w/patrol
Vehicular Repeaters *	2 Repeaters	No Mobile, 12 volt
Disposal Collector	n/a	
Maintenance Truck	n/a	
Utility Trucks	n/a	
Highway Maintenance	n/a	
Vans	4 Mobiles	Ajo Jail Van DUI Van OEM dental van Surveillance van
Buses	3 Mobiles	2 Ajo 1 Mt. Lemmon
Cars	2 Mobiles  28 Mobiles w/Remote Head	Ajo, CID PCSD Rage Car  Commanders Cars
Other (Please Describe)	3 Portables	TPD Helicopters (2)



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		<b>DPS Helicopter</b>
	<b>2 Mobiles</b>	<b>HelioCourier airplane</b>
	<b>1 Mobile</b>	<b>PCSD Cessna 310</b>
	<b>3 Mobiles</b>	<b>Ajo Cmnd Post trailer</b>
	<b>1 Mobile</b>	<b>Ajo, Cmnd tow vehicle</b>
	<b>4 Mobiles</b>	<b>Command Center</b>
	<b>2 Mobiles</b>	<b>Command Post Alpha</b>
	<b>3 Mobiles</b>	<b>Command Post Bravo</b>
	<b>1 Mobile</b>	<b>Hummer</b>
	<b>1 Mobile</b>	<b>DARE Suburban</b>
	<b>1 Mobile</b>	<b>EOD Response vehicle</b>
	<b>4 Mobiles</b>	<b>GV Command Post</b>
	<b>10 Mobiles</b>	<b>GV SAV Patrol Vehs</b>
	<b>9 Mobiles</b>	<b>PCSD ID Tech Vehs</b>
	<b>1 Mobile</b>	<b>Mat. Mgmt truck</b>
	<b>1 Mobile</b>	<b>SWAT Peacekeeper</b>
	<b>1 Mobile</b>	<b>SWAT Medics -NW</b>
	<b>10 Mobiles</b>	<b>Tsn SAV Vehs</b>
	<b>1 Mobile</b>	<b>Ajo SAV 3 Veh</b>
	<b>1 Mobile</b>	<b>Drexel Heights</b>
	<b>1 Mobile</b>	<b>GV Directed Ptrl -cig lighter pwr</b>
	<b>1 Mobile</b>	<b>SARA Suburban</b>
	<b>1 Mobile</b>	<b>SWAT Bear</b>
	<b>1 Mobile</b>	<b>SWAT Bearcat</b>
	<b>9, Mobiles w/Remote Head</b>	<b>Motorcycles</b>
	<b>Totals - Other</b>	
	<b>61 Mobiles</b>	
	<b>9 Mobiles w/Remote Head</b>	
	<b>3 Portables</b>	



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\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

**Clarifications:**

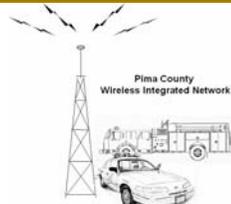
1. See attached inventory for specific details about where radios area assigned.

List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
Pima County Attorney's Office	2	Unk
Pima County Animal Control	1	Unk
Bldg Security, gate	1	Unk
Media, KVOA, Receive only	1	Monitoring PCSD talk grps
PCSD: Avra Valley, Catalina City, Corona De Tucson, Foothills x 2, Green Valley, Rincon, San Xavier, Rin Search&Rescue, Three Points, Summerhaven, Comm Ctr, Tsn SAV, GV SAV and CID: FIST, Title 3 Rm.	21	Daily Communications/ back-up for Comm
PCSD ACU 1000	1	Daily communications
PCSD, Quijotoa	2	Local coverage
CNA	1	Daily Communications
PCSD Training Center	1	Training
PCSD Judicial Security, Minimum Security, Tower, Annex & Jail Control Rooms: NE-A, NE-B, SE-A, SE-B, SW-A, SW-B, NW-A, NW-B	12	Dispatching/Communications
PCSD Ajo	1	Back-up

**Clarifications:**

See attached inventory for more specific information



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Please list the talk-group or channel assignments for your radios.

Primary Talk groups or channel name	Other Talkgroups or channel name	Repeater or Simplex **	Surrounding city or county	Federal	Tribal
See Enclosed Listing					

\* Designate the frequency band if known in the appropriate box.

\*\* A repeater channel is a channel that utilizes a tower; a simplex channel communicates radio to radio without the benefit of a tower repeater.

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

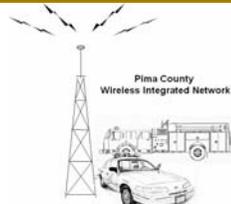
\_\_\_\_\_

\_\_\_\_\_

**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

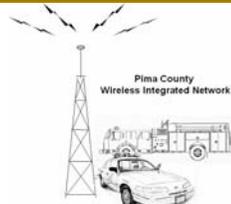
List Problem	0	1	2	3	4	5
Slow PTT Times, average >950 ms					X	
Requires 2 turn-off codes at the end of each TX - artificially busies the talk group					X	



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List Problem	0	1	2	3	4	5
Poor encryption - required to wait even further for the radios to synch. Poor sound quality.				X		
Radios must be In-Scan in order to seamlessly switch between antenna sites. Complicates radio use.					X	
Radios are complicated to use. Because each system must be defined by an antenna site, the program matrix is very confusing as is the concept of changing clusters or banks.					X	
Must create scan lists in order for the radios to switch sites automatically.					X	
Alphanumeric display does not function for Conventional channels. The screen will only read "CONVEN"				X		
No UID displayed. Individual calls and telephone calls are difficult to make.			X			
Small buttons/knobs/no visually defined Emergency button			X			
Emergency button function is of poor design: it would be better if the trip kept the user on their chosen talk group. Would like the press to be deliberate to avoid accidental trips and would like the activation to open the microphone for a short, predefined amount of time. Current design performs a complicated return of the user to their talk group, post emergency, or non-emergency, event.				X		
Radios do not change sites well, leading to poor TX/RX clarity: they do not seek the best site; they will not change if the talk group is busy					X	



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List Problem	0	1	2	3	4	5
We had to program in a Camp-On tone to tell the user the talk group is busy - necessary to avoid call collisions				X		
System access is NOT defined to include all users on the system on the same talk group!!!! This is an incorrect assumption. EFJ defined system access as the time needed to obtain a PTT. Because the PTT is granted at the sites, it is given before other sites are receiving the call. This leads to missed transmissions and half transmissions which lead to extra transmissions, further loading the already busy system.						X
Console patches are difficult and complicated with the Orbacomm consoles and as a result are not used.			X			

0 : No problem identified.

1 : Identified problem, currently not of concern. May become a concern in the future.

2 : Occasionally a problem, affects some operations but is generally worked around.

3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.

4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.

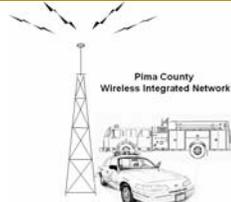
5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.

N/A: Not applicable or not answered.

**Clarifications:**

Also, our current default for the group scan option (commander radios) selects all groups in all systems for scan. User must then de-select one by one. Default should not select any and allow the user to select those they want. Rating of a 2.

The alias program in the Orbacomm switch is a good idea but it will allow all duplicate records



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and it will not allow reasonable management of the data (unable to print out a copy). An alias program which is user definable would be good, including some duplicate entries. We had to create a second, separate alias program to manage, which equals duplicate work. Rating of a 2.

Programming of the radios could be streamlined. As an example, each time a different radio is programmed, even if it is the same base program, the programmer must re-enter the UID multiple times. It would be better if a single entry would fill all the appropriate fields. Rating of a 2.

Poor radio coverage: Picture Rocks / Avra Valley (NW Tucson area); Sasabe and Arivaca, (southwest of Green Valley area); Lukeville and the southern part of the highway between Why and Lukeville (Ajo area); Mt. Lemmon and the back side of the Catalina Mountains; Highway 83 and the portion of Pima County to the east; foothills of Mt. Lemmon; the back side of the Rincon Mountains (Happy Valley, Redington Pass, San Pedro valley). Rating of 4.

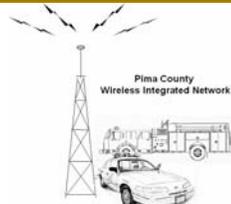
There are an estimated 64,000 call session failures per year. Call session failures are defined when the session has one of the following characteristics:

Late Entry: The session has at least one outbound channel where the start time is greater than one second than the originator.

Not all Channels Up: The session gets less than three channels (one per site) up during the duration of a call that lasts greater than one second.

Collision: The call session has more than one call record per site associated with the session.

The fleet map design is limiting.



**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
<b>Mobiles</b>	<b>60</b>	<b>22</b>	<b>22</b>	<b>25</b>
<b>Portables</b>	<b>368</b>	<b>128</b>	<b>147</b>	<b>165</b>
<b>Control Stations</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>Paging units</b>	<b>n/a</b>			
<b>Other Devices</b>	<b>n/a</b>			

**Clarifications:**

Numbers reflect net increases only!

Assumptions: 3% increase in Corrections Officers per year; 1% increase in Deputies per year; Assign all COs their own radio; We have plans to hire an additional 80 deputies over the next three years.

A larger Comm Center w/additional positions will need an additional control station (back-up) per dispatch position.

See attached spreadsheet for additional information.

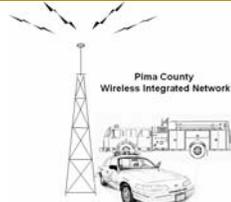
Thank you for your assistance.

*Please hand this survey in during your interview or return to:*

CTA Communications, Inc. Fax: (434) 239-9221  
 P.O. Box 4579 Phone: (434) 239-9200  
 Lynchburg, VA 24502-0579 [PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document14



### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** Pima County Sheriff's Department

**Contact Name:** Mike Sacco

**Position:** Communications Section

**Phone:** 520-741-4879

**Email:** mike.sacco@sheriff.pima.gov

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

#### I: CURRENT SITUATION

##### Mobile data equipment you currently have

Panasonic Toughbook CF27 and CF29 ruggedized laptops with 6GB hard drives, 64 MB of RAM, floppy disk drives, no optical drives, with touch screens. Most run the Microsoft Windows 98 operating system which doesn't provide adequate options for managing user accounts.

Kodiak and Precision docking stations

Blutree CDMA modems with serial port connections to the docking stations. An ethernet connection is desired.

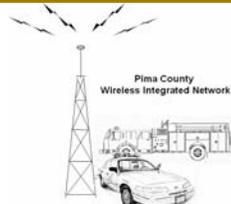
Sierra Wireless aircards for the motorcycle applications

Spillman Summit Mobile 4.1 client software

**Age:** Modems were replaced 02/2006, docks and laptops are mostly 5 years old

**Condition:** Fair

**Adequate:** No



**Mobile data functions that you currently have and use:**

Computer Aided Dispatch: Yes                      Name of CAD system:     Spillman  
Access to Records Management: Yes                      Name of RMS system:     Spillman  
Records functions available: Yes

**Field Reporting:**     No full blown field reporting. Deputies dictate reports and the data entry is completed by support staff. For minor incidents and field interviews deputies can enter narrative detail into a text field for very brief reports. Name and vehicle records must be entered by support staff from narrative text entered by the deputy.

**Automatic Vehicle Location (AVL):** No

**Email:**     Our Spillman application has its own message center incorporated within. We have permitted car-to-car and car-to dispatch e-mail capability recently. Users are just beginning to learn how to use it and to realize its benefit.

**Outlook or web-based?**     Technically possible, but not supported by policy

**Text Messaging:**     Car to car: No                      Car to dispatch: No

The Spillman Message Center provides for instant text messaging capabilities however we have not implemented it because of fears it will be misused.

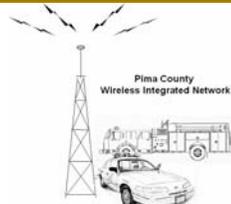
**Query** (Person, Vehicle, Property, etc) Local: Yes     State: Yes     National : Yes

**Other functions:**

1.     Mug shots are available via our RMS name records. Individual image files are relatively small so they transfer via CDMA quickly. Users have access to a wide range of criminal justice records in our RMS. These include name, vehicle and article records, incident records and reports, and alerts. Within 6-months a new feature will be added called Insight. This module will permit mobile users to query the databases of every Spillman user agency in Arizona. This includes 11 of the 14 County sheriff's offices and will eventually add the records of the three other county departments as well.

2.     Address locator application produced by Pima County GIS department (program resident on hard drive)

**Other software:**     Supervisors MDC are equipped with a suite of office applications, mostly Corel Office although County policy now requires Microsoft products. A handful of users are equipped with Garmin GPS units that interface with a mapping application on the laptop.



**Problems or concerns with your current capabilities:**

1. Out dated laptops need to be replaced. We anticipate replacing the equipment over the next two fiscal years.
2. The Blue Tree modems were recently installed. During the implementation we have experienced significant configuration problems with the modem and the Alltel CDMA service. The modems shipped with communications software that was not compatible with Windows 98 requiring technical staff to write their own scripts to automate communication with the network. We continue to experience problems reconnecting to the Alltel network when a user travels out of and back into a service area.
3. Laptop specifications have limited what we can do with these machines.

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

	Need	Desire	Have	Short Term	Long Term
<b>Functions:</b>					
CAD Dispatch	X		X		
RMS Access	X		X		
Mug Shots	X		X		
E-Mail	X		X		
AVL		X		X	
CAD Mapping		X			X
Multiple network access points (CDMA, 802.11, etc)		X		X	
Ethernet Modem connectivity		X		X	
Touch Screen Input	X		X		
Dual login authentication (biometrics possibly)	X			X	
Fingerprint capture		X			X

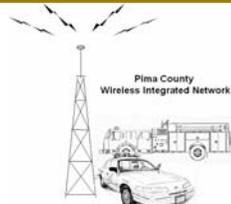


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	Need	Desire	Have	Short Term	Long Term
Photograph capture w/facial recognition comparison to mug shot database		X			X
Electronic traffic citations		X			X
Digital in car video recorders for all marked patrol units with file transfer to server		X			X
Mobile field reporting		X			X
<b>Geographical Areas:</b>					
Eastern Pima County (Tucson metropolitan area and outlying unincorporated areas)	X		X		
Ajo, AZ and surrounding area		X		X	
Mt. Lemmon		X		X	
Aircraft access	X			X	
<b>Information Sources:</b>					
Department RMS	X		X		
Mug Shots	X		X		
MVD	X		X		
Wants & Warrants	X		X		
Mapping		X		X	
Premise Information		X	X		
Fingerprint Identification		X			X
Electronic Citations		X			X
Facial Recognition		X			X
Administrative Intranet Information		X			X
<b>Information Sharing:</b>					
Car-to-car, car-to-dispatch text messaging		X	X		
Car-to-other user text messaging		X			
E-mail	X		X		
Local intranet access		X			X
CopLink Access (Shared data application)		X			X
<b>Equipment Upgrades:</b>					
Laptops w/Microsoft Windows XP and improved	X			X	

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hardware specifications to meet minimum specifications of Spillman application.					
802.11	X			X	
Dual login authentication	X			X	
<b>Personal Safety:</b>					
Airbag compliant	X		X		
Screens visible in daylight w/brightness and contrast controls	X		X		
<b>Performance Improvements:</b>					
Specifications to support high speed file transfers for informational files and client software updates	X			X	

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

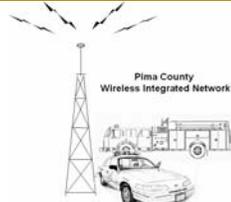
Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): No

Commercial Service (Verizon, etc): Alltel CDMA

Wi-Fi : No

Other (Describe): N/a

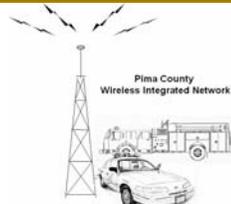


Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth x )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	272 w/23 not assigned	17 Ajo 97 CID	45 + 1%/Year	+1%/Year	+1%/Year
Wireless Handhelds (PDA's)	0	0	Unk	Unk	Unk
AVL equipped	None	386	45 + 1%/Year	+1%/Year	+1%/Year
Digital Pagers	None				
Tone Voice Pagers	None				
Other Devices _____	N/A				

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per dayX
CAD Dispatch	3 per day. A total avg. of 453 calls per day.
Query (license checks, vehicle registrations, wanted persons, property checks)	8 per day. A total avg. of 170 queries per MDC per month. Total queries from MDC average 50,000/month.
Car-to-car or car-to-dispatch message	Not currently enabled - Our other Spillman users average 10 per day.
Status updates	En route, arrived, update call, finished: 4 per call. 12 per day per user.
Emails	This was recently implemented. We average slightly more than 1 message/week per user. This is expected to increase significantly but we have not way of projecting actual future usage.
Field Report	N/A
Other _____	





#### 4. Computer Systems Checklist – Law Enforcement

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

March 14, 2006

##### Instructions for the Law Enforcement Department Checklist

The Pima County community is in the process of reviewing the current communications system. We are asking that the Law Enforcement Departments participate in an information gathering process to assist in obtaining information regarding the existing Computer Assisted Dispatch operating systems in use in the community. The intent of this review is to determine the size and capacity required now, and in the future, and elicit responses concerning operational features. The existing systems may require enhancement for size and capacity; as well as the addition of new features and functions. The existing systems should be applied to standards created by the National Fire Prevention Association in their NFPA 1221. The NFPA 1221 provisions have been adopted by the Commission on Accreditation for Law Enforcement Agencies (CALEA) for CAD systems. These NFPA 1221 requirements as they apply to CAD systems are included at the end of this document for your review.

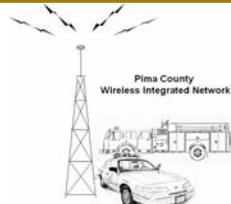
We ask you to read closely the following checklist. If you know the number then fill-in the space provided. If it is a statistic that is not readily available we ask that you provide your best estimate. These numbers should be as accurate as possible, but we are not asking you to perform a large research effort to obtain the answer.

In each category there is also an additional space provided for an estimate of your five year growth. ( We do not feel that there can be truly accurate ten-year predictions. ) We also ask that you fill out this space. The growth entry can be in either a number or a percentage of growth. If the item is a statistic you do not feel applies to your agency simply leave the space blank.

If there are other features, functions, or concerns that you have, please write them out in free form and simply attach them to your checklist.

This process will give us a base of the volume of activities that are required in the CAD systems. Other technical groups will be working on such system parameters as computer processor size and data speeds to handle the volume of work.

We thank you in advance for your efforts.



**Law Enforcement Department Checklist**

- 1) Department Name Pima County Sheriff's Department
- 2) Contact Name Lt. Mike Sacco
- 3) Contact Telephone Number 520-741-4879
- 4) Primary Response Area Unincorporated area of Pima County. This includes both eastern and western (Ajo) Pima County. This also includes the Regional SWAT Team response throughout Pima County.

- 5) Number of Personnel

Current PCSD radio users= 473 commissioned, 480 corrections, 17 civillian, 250 volunteers = 1220. Additional civillian members = 388. Total PCSD personnel = 1608  
Other law enforcement radio users = 165 ( Animal Care, Constables, DPS, Park Police, SAMHC, Victim Witness, CNA, TPD, US Parks, USFS, Pima College) 5 Year Growth +368 at PCSD

- 6) Number of Uniform vehicles

Current 316 Patrol, 21 Corrections 5 Year Growth +60

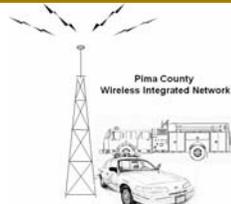
- 7) Number of Detective and radio equipped administrative vehicles

Current See enclosed list 5 Year Growth See enclosed list

- 8) Number and description of specialized vehicles (such as SWAT, Command, Crime Scene, etc.)

Description \_\_\_\_\_

Current See enclosed list 5 Year Growth See enclosed list



Description \_\_\_\_\_

Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_

Description \_\_\_\_\_

Current \_\_\_\_\_ 5 Year Growth \_\_\_\_\_

9) Number of stations or precincts

Current 10 patrol stations and sub-stations 5 Year Growth 1

10) Number of response zones or beats

Current 18 beats 5 Year Growth 5

11) Number of dispatched calls per year

Current 146,082 5 Year Growth at +2.3%/yr = 17590

12) Number of traffic stops per year

Current 76033 5 Year Growth at +2.3%/yr = 9155

13) Number of on-view or officer initiated calls per year

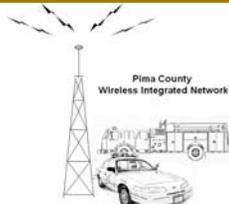
Current 19394 5 Year Growth at +2.3%/yr = 2336

14) Number of Other calls requiring a unit (education, assist motorist, standby, etc.)

Current Accounted for above 5 Year Growth \_\_\_\_\_

15) Number of calls (included above) that are out of your zone.

Current 0 5 Year Growth 0



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16) Number of calls (included above) that are out of Pima County.

Current 0 5 Year Growth 0

17) Number of calls (included above ) that are out of Arizona.

Current 0 5 Year Growth 0

18) Number of arrests per year (other than traffic citations)

Current 23960 w/ 12270 adult bookings 5 Year Growth at +9.28%/yr = 13381  
w/6853 adult bookings

19) Number of ACIC/NCIC requests

Current 234760 5 Year Growth at +3.65%/yr = 46089

21) Number of case report numbers issued per year.

Current 156097 5 Year Growth at +10.6%/yr = 172643

22) Number of Mobile Data terminals

Current 272 5 Year Growth 60 (45 +1%/yr)

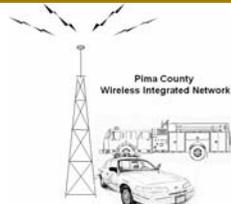
23) Number of station computers or others that would log-on to the network

Current 878 5 Year Growth at + 5%/yr = 242

24) Number of personnel that would require an individual log-on password

Current 2100 (Includes members from other Spillman contributing agencies)  
5 Year Growth at +5%/yr = 581

25) Highest typical number of officers than are on duty.



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Current 62 Patrol Deps + 21 CO vehs + 146 CO = **229** (Does not include admin/detective personnel on-duty, M-F, 0800-1700) 5 Year Growth at +1% /yr for Dep. and +3% /yr for CO = 31

**Pima County Sheriff's Department**  
**Radio Equipped Non-Marked / Administrative / Specialty Vehicles**

Total	Description	Portables	Mobiles	5 YR Growth
1	Ajo jail van		1	1
1	OEM Dental van		1	
1	DUI van		1	1
1	Surveillance "Fish" van		1	
2	Ajo area school bus		2	
1	Mt. Lemmon area school bus		1	
2	Ajo CID vehicles		2	
1	Rage vehicle		1	1
28	Commander vehicles		28	2
2	TPD helicopters, portables	2		
1	DPS helicopter, portable	1		
2	HelioCourier		2	
1	Cessna 310		1	
3	Ajo Command Post trailer		3	
1	Ajo tow vehicle		1	
4	Command Center		4	
2	Command Post Alpha		2	1
3	Command Post Bravo		3	
1	Hummer		1	1
1	DARE Suburban		1	
1	EOD response		1	1
4	GV Command Post		4	
10	GV SAV patrol vehicles		10	2
9	Identification vehicles		9	1
1	Material Management truck		1	
1	SWAT Peacekeeper		1	
1	SWAT Medics (NWFD)		1	
10	Tucson SAV patrol vehicles		10	1
1	Ajo SAV patrol vehicle		1	1
1	Drexel Heights Fire Department		1	
1	GV Patrol portable-mobile		1	
1	SARA Suburban		1	
1	SWAT Bear		1	



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1	SWAT Bearcat		1	
9	Motorcycles		9	2
31	Animal Care	15	16	2
16	Constables	13	3	
16	Pima County Park Police	10	6	
1	SAMHC	1		
13	Victim Witness	12	1	
67	CAN	67		
8	Natl. Park Service	4	4	
4	U.S. Forest Service		4	
<b>267</b>		<b>125</b>	<b>142</b>	<b>17</b>



**Provisions of NFPA 1221 and CALEA**

**Annex D Computer-Aided Dispatching (CAD) Systems**

**D.1** The CAD system should provide automated decision-support aids to telecommunicators by organizing and managing the real-time processing of informational items belonging to the following classes:

1. Alarms, including other requests for service
2. Incidents and events
3. Resources utilized by the communications center
4. Other classes, as directed by the authority having jurisdiction

**D.1.1** Each item should have the following characteristics:

1. Unique identifier
2. Status
3. Location
4. Description
5. Relationship to other items
6. Other characteristics, as directed by the authority having jurisdiction

**D.1.1.1** Alarm times should, as a minimum, also include the following characteristics:

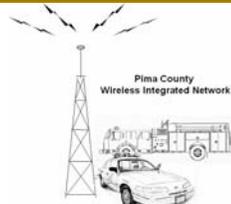
1. Source
2. Priority
3. Type

**D.1.1.2** Incident items should, as a minimum, also include the following characteristics:

1. Incident management structure
2. Evidentiary information

**D.1.1.3** Resource items should, as a minimum, also include the following characteristics:

1. Capabilities
2. Authorizations



3. Assignments
4. Activities

**D.2** The CAD system should archive items in a records management system for later retrieval, analysis, and reporting.

**D.3** The CAD system should record a history (audit trail) of the following actions taken with the items:

1. Creation
2. Change, including modification, deletion, or supplementation
3. Disposition, including close-out, archiving, and transfer

**D.3.1** Each entry in the history should include the following:

1. Coordinated universal time (UTC) of action
2. Identification of the individual performing the action
3. Effects of action on the characteristics of the items

**D.4** The automated exchange of digital information related to alarm objects between the communications center and external systems should be accomplished in accordance with standards published by the National Emergency Numbering Association (NENA) and the Association of Police Communications Officials, International (APCO).

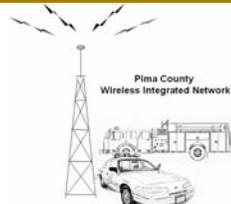
The automated exchange of digital information between communications centers should be accomplished in accordance with standards published by APCO.

The automated exchange of information between communications center and transportation information systems should be accomplished in accordance with standards registered with the Intelligent Transportation Systems (ITS) Data Registry.

#### **D.5 Reference Material**

**D.5.1** APCO Project 36 addresses standard format and content requirements that apply to information exchanged between CAD systems.

APCO International, Ind., World Headquarters, 351 N. Williamson Blvd., Daytona Beach, FL 32114-1112; (904) 322-2500, (888) 272-6911; Fax (904) 322-2501.



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**D.5.2** NENA Standard 02-010 addresses standard format and content requirements that apply to information exchanged with 9-1-1 databases.

National Emergency Number Association, 4350 North Fairfax Drive, Suite 750, Arlington, VA 22203-1695; (800) 332-3911; (614) 741-2080; Fax (614) 933-0911.

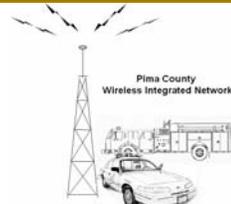
**D.5.3** Intelligent Transportation Systems Data Registry includes standards with standard format and content requirements that apply to information exchanged with transportation information systems.

Institute of Electrical and Electronics Engineers, ITS Data Registrar, P.O. Box 1331, Piscataway, NJ 08855-1331; (732) 981-0060; Fax (732) 981-1721.



5. Documentation Provided

- Coverage Predictions Table
- Pima County 800 MHz Frequencies
- Site Survey Schedule
- IP MobileNet System Block Diagram
- Pima County Regional Radio System Repeater Sites
- PCSD Telephone Statistics 2005
- Appendix F Microwave Site Coordinates
- Microwave Site List By Site Name
- 3-1-1 Statistics Database
- System Layout.doc
- 3-1-1 Data Log
- Microwave Channel Plan page 1
- Microwave Channel Plan page 2
- PCSD Telephone Statistics July 03 – June 04
- 2005 Pima County Emergency Response & Recovery Plan
- 2000 Census Demographics List
- Weekly Voter System Checklist
- Pima County Population Primer
- Romulus Propagation Maps 11-17-00
- Site photos
- Romulus Simulcast Propagation Maps
- Mobile Data System RNC Layout
- City of Tucson Site Summary PCWIN
- TFD Transmitter Locations
- TPD Transmitter Locations
- City of Tucson FCC License List
- Coverage Maps
- Mobile and Portables Chart
- Network Chart
- WAN Network Fiber Map
- Law Enforcement Frequency Bands
- Radio Station Frequencies



- Number of Radio Users List
- Channelization Plan
- Corrections Organizational Chart
- Radio System Coverage maps
- Sheriff's Dept. Organizational Chart
- Staffing levels for Corrections Positions
- Corrections Facility Map
- 2 Mile Grid map
- Pima County Sheriff Department Communications Unit Operations Guidelines
- Needs and Wants for Facility List
- 3-1-1 Data Log November 04

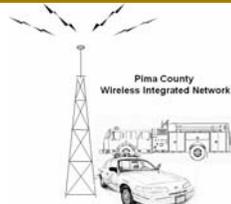


TABLE 2.3.1A Existing Interoperability

Agency Types		Pima County Sheriff's Dept.		Pima County Sheriff's Dept.		Pima County Sheriff's Dept.	
	Ajo/Gibson Vol. FD						
	Arivaca Vol. FD						
	Avra Valley Fire District						
	Corona de Tucson Fire District	X	Marana PD				Bureau of Alcohol, Tobacco, Firearms & Explosives
	Drexel Heights Fire District	X	Oro Valley PD				Customs and Border Protection
	Elephant Head Vol. FD		Pascua Yaqui PD			X	Drug Enforcement Administration
	Golder Ranch Fire District	X	Pima College Dept. of Public Safety			X	Emergency Man. & Homeland Security
	Green Valley Fire District		Pima County OEM & Homeland Security				Federal Bureau of Investigation
	Helmet Peak Fire District	X	Pima County Sheriff's Dept.			X	Immigration and Customs Enforcement
	Mt. Lemmon Fire District		Pima County Sheriff's Dept. - Ajo				National Park Service
	Northwest Fire District	X	Sahuarita PD			X	Bureau of Land Management
	Pascua Pueblo FD		South Tucson PD			X	U.S. Fish & Wildlife
	Picture Rocks Fire District		Tohono O'odham Tribal Police				U.S. Forest Service
	Rincon Valley Fire District	X	Tucson Airport Authority PD			X	U.S. Marshals Service
	Rural Metro Fire/Southwest Ambulance	X	Tucson PD				Arizona Dept. of Public Safety
	South Tucson FD	X	University of Arizona Police			X	Arizona Game and Fish
	Three Points FD						
	Tohono O' odham FD						
	Tucson Airport Authority FD	X					
	Tucson FD	X					
	Ajo Ambulance						
	Why Fire District						

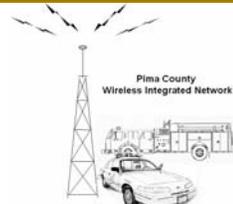
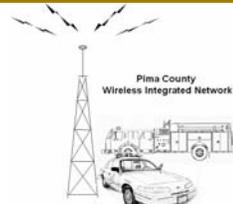


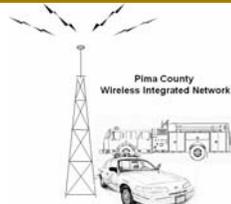
TABLE 2.3.1B Future Interoperability

Agency Types	Fire Agencies	Police and Emergency Services Agencies	Federal Agencies	Agencies
Pima County Sheriff's Dept.	X Ajo/Gibson Vol. FD	X Marana PD	X Bureau of Alcohol, Tobacco, Firearms & Explosives	
	X Arivaca Vol. FD	X Oro Valley PD		
	X Avra Valley Fire District	X Pascua Yaqui PD	X Customs and Border Protection	
	X Corona de Tucson Fire District	X Pima College Dept. of Public Safety	X Drug Enforcement Administration	
	X Drexel Heights Fire District	X Pima County OEM & Homeland Security		
	X Elephant Head Vol. FD	X Pima County Sheriff's Dept.	X Emergency Man. & Homeland Security	
	X Golder Ranch Fire District	X Pima County Sheriff's Dept. - Ajo	X Federal Bureau of Investigation	
	X Green Valley Fire District	X Sahuarita PD		
	X Helmet Peak Fire District	X South Tucson PD	X Immigration and Customs Enforcement	
	X Mt. Lemmon Fire District	X Tohono O'odham Tribal Police	X National Park Service	
	X Northwest Fire District	X Tucson Airport Authority	X Bureau of Land Management	
	X Pascua Pueblo FD	X Tucson PD	X U.S. Fish & Wildlife	
	X Picture Rocks Fire District	X University of Arizona Police	X U.S. Forest Service	
	X Rincon Valley Fire District		X U.S. Marshals Service	
	X Rural Metro Southwest Ambulance		X Arizona Dept. of Public Safety	
	X South Tucson FD		X Arizona Game and Fish	
	X Three Points FD			
	X Tohono O'odham FD			
	X Tucson Airport Authority FD			
	X Tucson FD			
	X Ajo Ambulance			
	X Why Fire District			



**TABLE 2.3.1C**  
**Pima County Sheriff's Department**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	3.0	This is particularly useful in Ajo for dispatching volunteer fire districts.
35	Fire Station Alerting	0.0	
36	Paging over Cellular	1.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	4.0	
38	Owner-Controlled Backbone	4.0	
39	Microwave Connectivity	4.0	
40	Microwave Additional Capacity	4.0	
41	Regional Connectivity	3.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	4.0	May not be practical for smaller, remote sites where access is permitted by vehicle.
<b>Training and Maintenance</b>			
46	Staffing and Training	4.0	
47	Centralized Maintenance	UNKNOWN	This has not been thoroughly explored at this point.
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	5.0	
49	Commonality of Equipment	3.0	
50	Multiple Sources	3.0	
51	Phased Implementation	4.0	
52	Tiered Subscriber Cost	5.0	
<b>Ranking Scale:</b>			
0 - Attribute is NOT IMPORTANT to the user.			
1 - Attribute is MINIMALLY IMPORTANT to the user.			
2 - Attribute is NICE TO HAVE, could enhance operations.			
3 - Attribute is USEFUL, will promote more efficient day to day operation.			
4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property.			
5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.3.2 Pima County Sheriff's Department - Ajo

### A. Current Environment

#### 1. Operational

The Ajo PCSD sub-station dispatched 2130 calls for service in 2005, and responded to 5364 self initiated calls. Ambulance service was involved in 358 of the calls. The Ajo District encompasses approximately 5,000 square miles.

#### . Functional

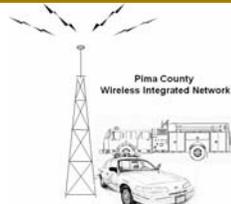
Users experience RF coverage problems in several spots along Rt. 85 south of Ajo

F3, the paging channel experiences interference (or bleedover) from Mexico. Pima uses F3 as a repeated channel (2 frequencies). Smugglers often use one of the frequencies in simplex mode causing interference for Pima.

SO does experience a few interference problems on 800 MHz, they guess due to close frequency reuse of the same frequencies in eastern Pima County.

#### 3. Technical

The Sheriff's Office communicates on a separate stand alone trunked 800 MHz radio system operated in Western Pima County with the primary site at Childs Mountain and an additional fill-in site on Ajo Mountain. This system uses three 800 MHz trunked frequencies. Ajo Mountain is a solar site that consists of two portable radios tied back to back to rebroadcast calls received on a conventional channel to a trunked talk group.



The dispatch center is equipped with EFJ Tracer consoles. Local, State and Federal VHF and UHF channels are routed into dispatch allowing patch between Sheriff and other agencies as needed. Sheriff's Office covers 5000 square miles with 17 (14 deputies & 3 sergeants) units. The Sheriff's Department also dispatches for two local fire districts and a private ambulance service on a separate VHF radio system

SO currently needs and uses encrypted communications. Today's analog encryption requires frequent "adjustment" to keep it operating at full performance.

From a new system design standpoint, we are told that leased landlines connecting Ajo to the outside world can be unreliable, especially during severe weather.

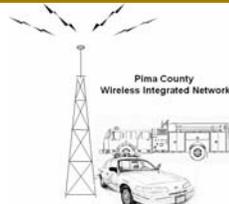
The E.F. Johnson Tracer console system experiences slowed performance during patching and encrypted operations due to CPU speed limitations.

The Department utilizes CDMA services provided by Alltel for its mobile data computer fleet. Cellular services are available in Ajo, but the coverage area is not known. The Department has not chosen to implement mobile data computers in Western Pima County at this time.

#### 4. Interoperability

TABLE 2.3.2A shows the existing direct interoperability capabilities with other agencies for the Ajo agencies.

Fire and Ambulance VHF users are able to talk to other VHF users, but not the Federal agencies or State DPS (different part of the VHF band).



Ajo PCSD sub-station dispatch needs to be able to patch to the DPS channels, but cannot today.

PCSD and the fire departments need to operate on the same radio band and use gateway devices to link to other bands such as UHF for DPS and the Federal VHF bands.

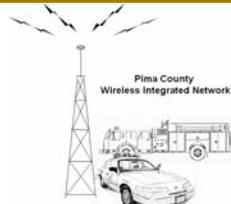
Because of the necessity of resource sharing and cooperation between County, State and Federal resources in this region, a new regional radio concept must emphasize easy intercommunication between all agencies.

The Park Service in Organ Pipe sometimes gets involved in law enforcement activities and needs to be able to communicate with County and Federal agencies. Park Service is painfully transitioning to their mandated new P25 radios. They are currently allowed to operate in both analog and digital modes during the transition. Ultimately, their operation will be all-digital encrypted.

The Sheriff's office and Border Patrol currently exchange radios when working an incident together. Sheriff would like to link to federal bands using a mobile ACU 1000-type linking device.

PCSD in Ajo needs convenient interoperable communications on a routine basis with:

- U.S Border Patrol
- National Park Service
- Bureau of Land Management
- Arizona DPS
- Customs Enforcement



B. Positive Attributes of Current Environment

1. Operational

The Sheriff's office and Border Patrol currently exchange radios when working an incident together. While this could be made more efficient the cooperation today is good.

2. Functional

Federal VHF and UHF channels are routed into dispatch allowing patch between Sheriff and other agencies as needed. Sheriff's Office covers 5000 square miles with 17 (14 deputies & 3 sergeants) units.

3. Technical

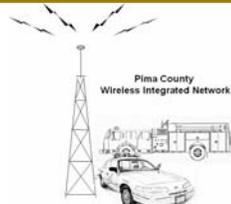
Currently managing the leased landlines reliability issues to ensure the best possible system access for users.

C. Desired Attributes of Current and Future Environment

1. Operational

Sheriff, Fire, and EMS in western Pima County need a single radio system that offers segregated operations (separate talkgroups). On a routine basis, they need quick and easy access to common talkgroups on the same system when working an incident together.

Ideally, western county agencies would have the same quick and easy access via common talkgroups to the Federal agencies they need to talk to everyday. However, Public Safety is generally not permitted to key radios on Federal channels even if their radio were capable due to same-band operation. The solution to bridging the local-federal communications gap will have to take the form of technology capable of linking channels or talkgroups.



2. Functional

Sheriff's radio coverage needs to be improved both north and south along highway 85. Coverage is needed from Why southward to the International/County border. Why water tank is a good potential site location. Mobile coverage is needed as far northward as practical toward Gila Bend in Maricopa County.

3. Technical

PCSD in Ajo needs to become a participant in the County mobile data system.

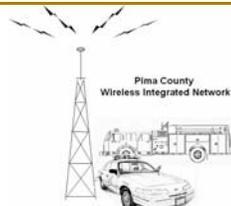
Need to deal with the interference issues with Mexico.

4. Interoperability Matrix

TABLE 2.3.2B shows the future direct interoperability capabilities with other agencies for the department.

5. Attributes Matrix

Please refer to TABLE 2.3.2C, a summary of system attributes that may be emphasized in a PCWIN regional communications system.



D. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Sherriff's Department at Ajo

File Name: 030206 Sheriff Ajo Final.doc

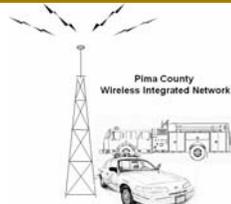
Date of Interview: March 2, 2006

Location of Interview: Ajo Sheriff's Office

Persons Interviewed: Lt. Bill Clements, Commander Ajo  
Kerry Reeve, PCOEMHS  
Lonnie Guthrie, Chief Ajo Ambulance  
Jana Moe, Park Ranger  
Greg Kaufmann, Captain Ajo Ambulance  
J.D. Allen, PIO Ajo Fire Dept.  
Alex J. Harper, SBPA  
Richard Walker, F.S./Comm/Races  
Vern Denning, Why FD Chief  
Eric Davies, Deputy Area Manager, Arizona  
Kenneth Carpenter, Field Tech Officer, DHS, Ajo Station  
Larry Sayers, Radio Communications Manager  
Captain Paul Wilson, Pima County Sheriff's Dept

Interviewees represented a collection of public safety agencies operating in Western Pima County. These included the Pima County Sheriff's Department, Ajo-Gibson and Why Fire Departments, U.S. Parks Service, Border Patrol, and Pima County Office of Emergency Management.

CTA Interviewers: David Anderson, CTA Senior Systems Engineer



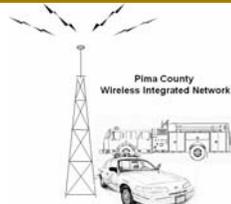
The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. The Ajo PCSD sub-station dispatched 2130 calls for service in 2005, plus responded to 5364 self initiated calls. Ambulance service was involved in 358 of the calls.

Present Situation

1. A private ambulance service was started in Ajo in 1989 and is dispatched from the Ajo PCSD sub-station. Repeaters are located on Child's Mountain and Quijotoa Mountain. Ambulance has 10 units and runs about 3000 calls per year. Much of the Ambulance service business is on the Tohono O'odham Nation.
2. The Sheriff's Office communicates on trunked 800 MHz radio repeated from Child's Mountain. The dispatch center is equipped with EFJ Tracer consoles. Local, State and Federal VHF and UHF channels are routed into dispatch allowing patch between Sheriff and other agencies as needed. Sheriff's Office covers 5000 square miles with 17 (14 deputies & 3 sergeants) units.
3. Fire and Ambulance VHF users are able to talk to other VHF users, but not the Federal agencies or State DPS (different part of the VHF band).
4. The Ajo/Gibson Volunteer Fire Department is dispatched from the Sheriff's office on their own single repeated VHF channel. They work closely with Why Fire Department. Fire personnel have access to 7 or 8 other VHF channels. Fire uses tone/voice pagers transmitted on F3 using a Zetron paging encoder. Motorola Keynote pagers are preferred over the more expensive Monitor models.
5. The Sheriff's office and Border Patrol currently exchange radios when working an incident together. Sheriff would like to link to federal bands using a mobile ACU 1000-type linking device.
6. Why Fire has their own repeated radio frequency (at Why water tank), 8 mobiles in Fire vehicles, 2 mobile in personal vehicles, and no pagers. Why Fire Department is also dispatched by the Sheriff's Ajo District.
7. The Park Service in Organ Pipe sometimes gets involved in law enforcement activities and needs to be able to be able to communicate with County and Federal agencies.



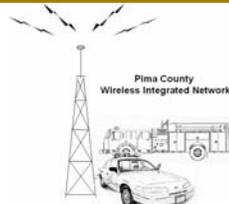
Park Service is painfully transitioning to their mandated new P25 radios. They are currently allowed to operate in both analog and digital modes during the transition. Ultimately their operation will be all-digital encrypted.

Present Problems

1. Fire experiences RF coverage problems in several spots along Rt 85 south of Ajo.
2. F3, the paging channel experiences interference (or bleedover) from Mexico. Pima uses F3 as a repeated channel (2 frequencies). Smugglers often use one of the frequencies in simplex mode causing interference for Pima.
3. SO currently needs and uses encrypted communications. Today's analog encryption requires frequent "adjustment" to keep it operating at full performance.
4. SO does experience a few interference problems on 800 MHz, they guess due to close frequency reuse of the same frequencies in eastern Pima County.
5. From a new system design standpoint, we were told that leased landlines connecting Ajo to the outside world can be unreliable, especially during severe weather.
6. Ajo PCSD sub-station dispatch needs to be able to patch to the DPS channels.

Future Requirements

1. Why water tank is a good potential site location.
2. Fire's goal is to issue portables to all personnel. The selected model needs good connectivity to SCBA devices.
3. PCSD in Ajo wants to become a participant in the County mobile data system.
4. PCSD and the fire departments need to operate on the same radio band and use gateway devices to link to other bands such as UHF for DPS and the Federal VHF bands.
5. Because of the high level resource sharing and cooperation between County, State and Federal resources in this region, a new regional radio concept must emphasize easy intercommunication between all agencies.



The draft of this record was sent to Captain Paul Wilson on April 4, 2006.

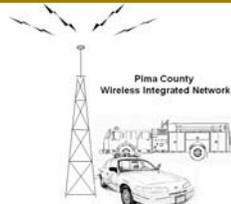
Corrected draft was returned to CTA Communications on April 7, 2006.

**Interviewee Name & Address:**

Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

Reviewed and corrected on 4/6/06    Captain Paul Wilson

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\030206 Sheriff Ajo  
FINAL.doc



2. Radio Usage Form

SO, - AJO - RADIO 4

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** PIMA COUNTY SHERIFF'S DEPT. - AJO DISTRICT

**Contact Name:** LT BILLY J. CLEMENTS **Position:** COMMANDER

**Phone:** 520-547-8525 **Email:** BILLY.CLEMENTS@SHERIFF.PIMA.GOV

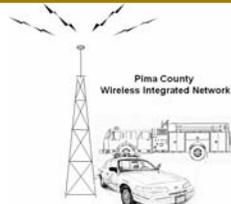
Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

**I: RADIO UTILIZATION CURRENT SITUATION**

a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C - F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

Page 1 of 7



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	32	5	11	5	
Portables	37	5	12	6	
Control Stations	1	1	1	1	
Paging units	2	2	2	2	
Other Devices					

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

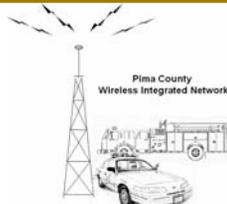
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\_\_\_\_\_

c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles	21	YES



Pima County, Arizona  
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Jail Transport		
Special Ops	1	YES
Vehicular Repeaters *	1	YES
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance	1	YES
Vans	2	YES
Buses		
Cars	2	YES
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)
1249 WELL RD AJO, AZ	2	DISPATCH / BACKUP DISPATCH



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

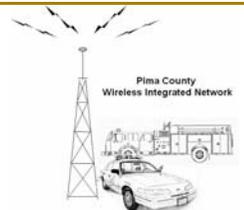
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\_\_\_\_\_

e. Please list the talk-group or channel assignments for your radios.

Primary Talk groups or channel name	Other Talkgroups or channel name	Repeater or Simplex **	Surrounding city or county	Federal	Tribal
PATROL 1		REPEATER			
PATROL 2		REPEATER			
CID		REPEATER			
BANN		REPEATER			
REPEATER 2		SIMPLEX			
COUNTY 1		REPEATER			
COUNTY 2		REPEATER			

\* Designate the frequency band if known in the appropriate box.  
 \*\* A repeater channel is a channel that utilizes a tower; a simplex channel communicates radio to radio without the benefit of a tower repeater.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

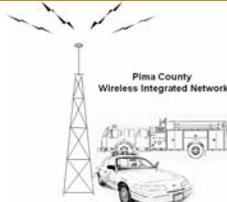
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**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
RADIO COVERAGE POOR					✓	
LACK OF SYSTEM RESOURCES			✓			
SLOW CPU BUS SPEED		✓				
SCANABILITY - SLOW ENCRYPTION CAPABILITIES		✓				
LACK OF TRAINING ON FIELD USE OF SYSTEM			✓			



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
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- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

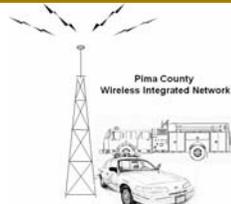
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Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles				
Portables				
Control Stations				
Paging units				
Other Devices				

Clarifications:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Thank you for your assistance.

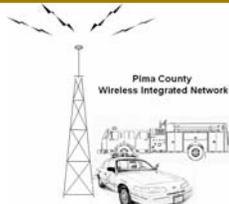
Please hand this survey in during your interview or return to:

CTA Communications, Inc.  
 P.O. Box 4579  
 Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
 Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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### 3. Mobile Data Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

#### CTA COMMUNICATIONS MOBILE DATA INFORMATION SURVEY

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

**Organization/Agency Name:** Pima County Sheriff's Department

**Contact Name:** Mike Sacco

**Position:** Communications Section

**Phone:** 520-741-4879

**Email:** mike.sacco@sheriff.pima.gov

**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

#### I: CURRENT SITUATION

##### Mobile data equipment you currently have

Panasonic Toughbook CF27 and CF29 ruggedized laptops with 6GB hard drives, 64 MB of RAM, floppy disk drives, no optical drives, with touch screens. Most run the Microsoft Windows 98 operating system which doesn't provide adequate options for managing user accounts.

Kodiak and Precision docking stations

Blutree CDMA modems with serial port connections to the docking stations. An ethernet connection is desired.

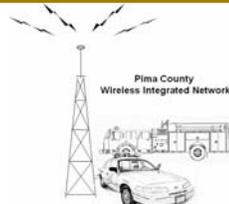
Sierra Wireless aircards for the motorcycle applications

Spillman Summit Mobile 4.1 client software

**Age:** Modems were replaced 02/2006, docks and laptops are mostly 5 years old

**Condition:** Fair

**Adequate:** No



**Mobile data functions that you currently have and use:**

Computer Aided Dispatch: Yes                      Name of CAD system:     Spillman  
Access to Records Management: Yes                      Name of RMS system:     Spillman  
Records functions available: Yes

**Field Reporting:**     No full blown field reporting. Deputies dictate reports and the data entry is completed by support staff. For minor incidents and field interviews deputies can enter narrative detail into a text field for very brief reports. Name and vehicle records must be entered by support staff from narrative text entered by the deputy.

**Automatic Vehicle Location (AVL):** No

**Email:**     Our Spillman application has its own message center incorporated within. We have permitted car-to-car and car-to dispatch e-mail capability recently. Users are just beginning to learn how to use it and to realize its benefit.

**Outlook or web-based?**     Technically possible, but not supported by policy

**Text Messaging:**     Car to car: No                      Car to dispatch: No

The Spillman Message Center provides for instant text messaging capabilities however we have not implemented it because of fears it will be misused.

**Query** (Person, Vehicle, Property, etc) Local: Yes     State: Yes     National : Yes

**Other functions:**

1.     Mug shots are available via our RMS name records. Individual image files are relatively small so they transfer via CDMA quickly. Users have access to a wide range of criminal justice records in our RMS. These include name, vehicle and article records, incident records and reports, and alerts. Within 6-months a new feature will be added called Insight. This module will permit mobile users to query the databases of every Spillman user agency in Arizona. This includes 11 of the 14 County sheriff's offices and will eventually add the records of the three other county departments as well.

2.     Address locator application produced by Pima County GIS department (program resident on hard drive)

**Other software:**     Supervisors MDC are equipped with a suite of office applications, mostly Corel Office although County policy now requires Microsoft products. A handful of users are equipped with Garmin GPS units that interface with a mapping application on the laptop.



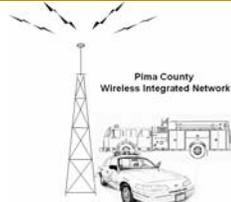
**Problems or concerns with your current capabilities:**

1. Out dated laptops need to be replaced. We anticipate replacing the equipment over the next two fiscal years.
2. The Blue Tree modems were recently installed. During the implementation we have experienced significant configuration problems with the modem and the Alltel CDMA service. The modems shipped with communications software that was not compatible with Windows 98 requiring technical staff to write their own scripts to automate communication with the network. We continue to experience problems reconnecting to the Alltel network when a user travels out of and back into a service area.
3. Laptop specifications have limited what we can do with these machines.

**II: FUTURE NEEDS AND DESIRES:**

Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: **functions** (CAD dispatch, AVL, etc), **geographical areas** where you need service, **information sources** (records, databases, mug shots, etc) you need to access to, **information sharing** (messaging, other data sources) with other agencies, departments, **equipment upgrades** you need, **personal safety** considerations, and **performance** improvements.

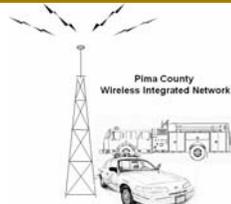
	Need	Desire	Have	Short Term	Long Term
<b>Functions:</b>					
CAD Dispatch	X		X		
RMS Access	X		X		
Mug Shots	X		X		
E-Mail	X		X		
AVL		X		X	
CAD Mapping		X			X
Multiple network access points (CDMA, 802.11, etc)		X		X	
Ethernet Modem connectivity		X		X	
Touch Screen Input	X		X		
Dual login authentication (biometrics possibly)	X			X	
Fingerprint capture		X			X



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

	Need	Desire	Have	Short Term	Long Term
Photograph capture w/facial recognition comparison to mug shot database		X			X
Electronic traffic citations		X			X
Digital in car video recorders for all marked patrol units with file transfer to server		X			X
Mobile field reporting		X			X
<b>Geographical Areas:</b>					
Eastern Pima County (Tucson metropolitan area and outlying unincorporated areas)	X		X		
Ajo, AZ and surrounding area		X		X	
Mt. Lemmon		X		X	
Aircraft access	X			X	
<b>Information Sources:</b>					
Department RMS	X		X		
Mug Shots	X		X		
MVD	X		X		
Wants & Warrants	X		X		
Mapping		X		X	
Premise Information		X	X		
Fingerprint Identification		X			X
Electronic Citations		X			X
Facial Recognition		X			X
Administrative Intranet Information		X			X
<b>Information Sharing:</b>					
Car-to-car, car-to-dispatch text messaging		X	X		
Car-to-other user text messaging		X			
E-mail	X		X		
Local intranet access		X			X
CopLink Access (Shared data application)		X			X
<b>Equipment Upgrades:</b>					
Laptops w/Microsoft Windows XP and improved	X			X	



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

hardware specifications to meet minimum specifications of Spillman application.					
802.11	X			X	
Dual login authentication	X			X	
<b>Personal Safety:</b>					
Airbag compliant	X		X		
Screens visible in daylight w/brightness and contrast controls	X		X		
<b>Performance Improvements:</b>					
Specifications to support high speed file transfers for informational files and client software updates	X			X	

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): No

Commercial Service (Verizon, etc): Alltel CDMA

Wi-Fi : No

Other (Describe): N/a

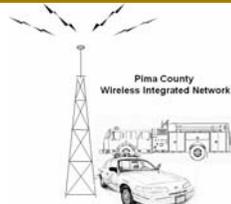


Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth x )		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	272 w/23 not assigned	17 Ajo 97 CID	45 + 1%/Year	+1%/Year	+1%/Year
Wireless Handhelds (PDA's)	0	0	Unk	Unk	Unk
AVL equipped	None	386	45 + 1%/Year	+1%/Year	+1%/Year
Digital Pagers	None				
Tone Voice Pagers	None				
Other Devices _____	N/A				

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions per hour or per dayX
CAD Dispatch	3 per day. A total avg. of 453 calls per day.
Query (license checks, vehicle registrations, wanted persons, property checks)	8 per day. A total avg. of 170 queries per MDC per month. Total queries from MDC average 50,000/month.
Car-to-car or car-to-dispatch message	Not currently enabled - Our other Spillman users average 10 per day.
Status updates	En route, arrived, update call, finished: 4 per call. 12 per day per user.
Emails	This was recently implemented. We average slightly more than 1 message/week per user. This is expected to increase significantly but we have not way of projecting actual future usage.
Field Report	N/A
Other _____	



Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
February 7, 2006

Any additional comments or questions you have regarding mobile data:

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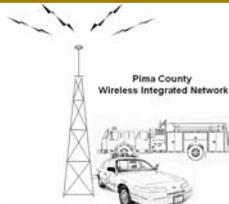
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



4. Computer Systems Checklist – Fire & EMS Departments

None.

5. Documentation Provided

- Sheriff's Department Organizational Chart
- Summary of 2005 Calls for Service

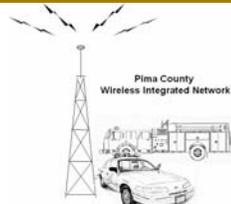


TABLE 2.3.2A Existing Interoperability

Pima County Sheriff's Dept. - Ajo		Pima County Sheriff's Dept. - Ajo		Pima County Sheriff's Dept. - Ajo	
Agency Types		Agency Types		Agency Types	
	X				
Ajo/Gibson Vol. FD				Bureau of Alcohol, Tobacco, Firearms & Explosives	
Arivaca Vol. FD				Customs and Border Protection	X
Avra Valley Fire District				Drug Enforcement Administration	
Corona de Tucson Fire District		Marana PD		Emergency Man. & Homeland Security	
Drexel Heights Fire District		Oro Valley PD		Federal Bureau of Investigation	
Elephant Head Vol. FD		Pascua Yaqui PD		Immigration and Customs Enforcement	
Golder Ranch Fire District		Pima College Dept. of Public Safety		National Park Service	X
Green Valley Fire District		Pima County OEM & Homeland Security		Bureau of Land Management	
Helmet Peak Fire District		Pima County Sheriff's Dept.		U.S. Fish & Wildlife	X
Mt. Lemmon Fire District		Pima County Sheriff's Dept. - Ajo		U.S. Forest Service	
Northwest Fire District		Pascua Pueblo FD		U.S. Marshals Service	
Pascua Pueblo FD		Picture Rocks Fire District		Arizona Dept. of Public Safety	
Picture Rocks Fire District		Rincon Valley Fire District		Arizona Game and Fish	
Rincon Valley Fire District		Rural Metro Fire/Southwest Ambulance			
Rural Metro Fire/Southwest Ambulance		South Tucson FD			
South Tucson FD		Three Points FD			
Three Points FD		Tohono O' odham FD			
Tohono O' odham FD		Tucson Airport Authority FD			
Tucson Airport Authority FD		Tucson FD			
Tucson FD		Ajo Ambulance	X		
Ajo Ambulance	X	Why Fire District	X		
Why Fire District	X				

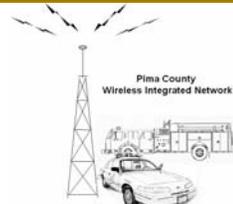


TABLE 2.3.2B Future Interoperability

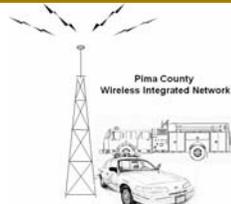
Agency Types		Pima County Sheriff's Dept. - Ajo	
		X	Ajo/Gibson Vol. FD
			Arivaca Vol. FD
			Avra Valley Fire District
			Corona de Tucson Fire District
			Drexel Heights Fire District
			Elephant Head Vol. FD
			Golder Ranch Fire District
			Green Valley Fire District
			Helmet Peak Fire District
			Mt. Lemmon Fire District
			Northwest Fire District
			Pascua Pueblo FD
			Picture Rocks Fire District
			Rincon Valley Fire District
			Rural Metro Southwest Ambulance
			South Tucson FD
			Three Points FD
			Tohono O'odham FD
			Tucson Airport Authority FD
			Tucson FD
		X	Ajo Ambulance
		X	Why Fire District

Agency Types		Pima County Sheriff's Dept. - Ajo	
			Marana PD
			Oro Valley PD
			Pascua Yaqui PD
			Pima College Dept. of Public Safety
			Pima County OEM & Homeland Security
			Pima County Sheriff's Dept.
			Pima County Sheriff's Dept. - Ajo
			Sahuarita PD
			South Tucson PD
			Tohono O'odham Tribal Police
			Tucson Airport Authority
			Tucson PD
			University of Arizona Police

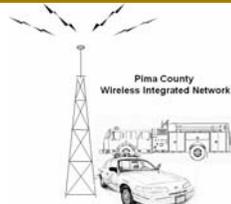
  

Agency Types		Pima County Sheriff's Dept. - Ajo	
			Bureau of Alcohol, Tobacco, Firearms & Explosives
		X	Customs and Border Protection
			Drug Enforcement Administration
			Emergency Man. & Homeland Security
			Federal Bureau of Investigation
			Immigration and Customs Enforcement
		X	National Park Service
			Bureau of Land Management
		X	U.S. Fish & Wildlife
			U.S. Forest Service
			U.S. Marshals Service
		X	Arizona Dept. of Public Safety
			Arizona Game and Fish



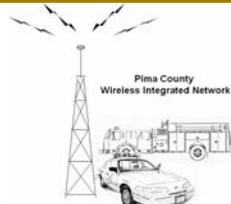
**TABLE 2.3.2C**  
**Pima County Sheriff's Department AJO**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Radio Coverage</b>			
1	Improved Voice Radio Coverage – Eastern County	0.0	
2	Improved Voice Radio Coverage – Central County	0.0	
3	Improved Voice Radio Coverage – Western County	5.0	
4	In-building Coverage	5.0	
5	Minimize Local Interference	5.0	
<b>Voice Radio Operations</b>			
6	Increased Channel Capacity	5.0	
7	On-scene Fire Channels	5.0	
8	Monitored Firegrounds	5.0	
9	Emergency Alerting	5.0	
10	Workgroup Oriented Operation	4.0	
11	Voice Security	5.0	
12	Operational Boundary Transparency	5.0	
13	One System Serves All Agencies	5.0	
14	Interoperability through Dispatch	5.0	
15	Interoperability with Adjacent Counties	5.0	
16	Interoperability with State Agencies	5.0	
17	Interoperability with Federal Agencies	5.0	
18	Person Location	5.0	
19	System Control	5.0	
20	Recorded Operations	5.0	
21	Simplified User Operations	5.0	
<b>Dispatch Operations</b>			
22	Increased Dispatch Channel Capacity	5.0	
23	Dispatch Capacity	5.0	
24	Dispatch Coverage	5.0	
<b>Mobile Data Functions</b>			
25	One Mobile Data Network Serves All Agencies	4.0	
26	Cross CAD Interconnection	5.0	
27	Mobile Data Criticality	5.0	
28	Vehicle Location	5.0	
29	EMS Telemetry	1.0	
30	High-Speed Broadband Service	5.0	
31	Mobile Applications	4.0	
32	Advanced Mobile Applications	4.0	
33	Access County Information	5.0	
<b>Paging and Alerting Operations</b>			
34	Private Personnel Paging	4.0	
35	Fire Station Alerting	5.0	
36	Paging over Cellular	4.0	
<b>Infrastructure Capabilities</b>			
37	Future Expansion	5.0	
38	Owner-Controlled Backbone	5.0	
39	Microwave Connectivity	5.0	
40	Microwave Additional Capacity	5.0	
41	Regional Connectivity	5.0	
<b>Reliability and Availability</b>			
42	Survivability	5.0	
43	Reliability/Failure Hierarchy	5.0	
44	Single Points of Failure	5.0	
45	Power Backup	5.0	
<b>Training and Maintenance</b>			
46	Staffing and Training	5.0	
47	Centralized Maintenance	4.0	



**TABLE 2.3.2C**  
**Pima County Sheriff's Department AJO**

DESIGNATOR NO.	ATTRIBUTE	RANK (0 - 5)	COMMENTS
<b>Cost and Procurement</b>			
48	Competitive Procurement Process	1.0	
49	Commonality of Equipment	5.0	
50	Multiple Sources	5.0	
51	Phased Implementation	5.0	
52	Tiered Subscriber Cost	4.0	
Ranking Scale: 0 - Attribute is NOT IMPORTANT to the user. 1 - Attribute is MINIMALLY IMPORTANT to the user. 2 - Attribute is NICE TO HAVE, could enhance operations. 3 - Attribute is USEFUL, will promote more efficient day to day operation. 4 - QUITE IMPORTANT, lack could result in degradation of mission, injury, or loss of property. 5 - CRITICAL, lack generally will result in injury, loss of property, or degradation of mission.			



## 2.4 Other Entities

### 2.4.1 Rural Metro Fire Department – Southwest Ambulance

#### A. Current Environment

##### 1. Operational

Rural Metro/Southwest Ambulance is responsible for 124 square miles and covers a majority of Pima County. Rural Metro/Southwest is located at 3759 North Commerce Drive, Tucson, in a 20,000 square foot building. The fleet maintenance operations reside at this location.

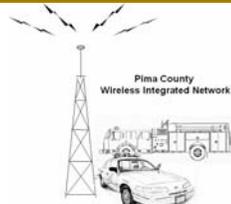
##### 2. Functional

Rural Metro/ Southwest Ambulance currently have 150 vehicles, and 40 dispatchers that work two (2) 12 hour shifts with 8-10 to 10 dispatchers staffed per shift. There are plans to add 10 dispatchers over the next 2 years. They also utilize a helicopter service (Copter Line) that operates from St. Mary's Hospital.

The center is responsible for the dispatch of Southwest Ambulance, Rural Metro Fire Department, Corona De Tucson Fire Department, Oracle Fire Department and Southwest Ambulance of New Mexico (Roswell and Las Cruces). In addition Rural Metro dispatches Samuel Well and Graham area ambulances. These stations are comprised of 13 fire stations and 8 ambulance sites. Northwest Fire and Golder Ranch are dispatched from Tucson Fire.

##### 3. Technical

The Rural Metro Console positions are MOTOROLA Centracom Gold Elite. The CAD system is a GEAC.



It is text based CAD, and it interfaces with the NFIR (national fire Informant Records) system.

The 911 switch is provided by QWEST and it is a Plant Vest Palace switch V.2.6. It has been upgraded February 2006. The Logging Recorder/ Instant Recall Recorder is a Dictaphone 5BA000 and it has been upgraded in March 2004. The PBX is a Norte BCM400 switch and it is approximately two years old.

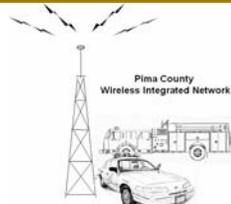
The Rural Metro / Southwest Ambulance radios have TK730, TK830, TK2170, TK2180, TK790, and TK890 mobiles in the vehicles; and 272GE, 273GE, TK280, and TK380 portables assigned for on-duty personnel. The radios operate in the VHF frequency bands, except for the TK2180 UHF mobiles and the TK 890 UHF portables.

There are five 911 lines to support Fire/ EMS operations and ten administration lines. The center has single-button transfer capabilities and six ring-down circuits.

The dispatch center utilizes a mix of conventional VHF and UHF systems to support fire/ EMS operations. Primary VHF channels are designated RMFD F1, F2, F4 – F8. SWA 3 (159.090 TX/ 153.815 RX) is utilized for medical dispatch only and SWA F9 (155.75) is available for medical operations support. Primary UHF channels are designated MEDS 1-10, TFD F1-4, F6, Drexel, Canyon Ranch, CDTFD Dispatch & simplex, Mt. Lemmon Fire Dispatch & Simplex, Rincon Fire Dispatch & Simplex. The Mt. Lemmon repeater serves as a backup station for the Southwest Tucson area. This is a primary channel for Pinal County.

#### 4. Interoperability

TABLE 2.4.1A shows the existing direct interoperability capabilities with other agencies for the local fire departments.



Currently interoperability is performed utilizes both VHF and UHF systems to support communications with Rural Metro Fire, Southwest Ambulance, South Tucson Fire Department, Corona de Tucson Fire Department, and Elephant Head Fire Department.

B. Positive Attributes of Current Environment

1. Operational

The radio system has a large number of VHF/ UHF channels to support communications with public safety responders. The current number of channel assignments for each department provides adequate support for operations.

2. Functional

A system upgrade should contribute to improving coverage performance especially along the Sahuarita highway. Expanding the geographical service area to support the department's growth is being planned.

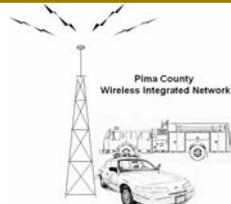
3. Technical

A system upgrade should include a wide-area type system that shares common channels or facilitate network disparate frequency band. A dedicated mobile data system for fire rescue services is needed.

C. Desired Attributes of Current and Future Environment

1. Operational

The new system should allow access to public safety agencies and provide the ability to roam throughout service area without having to manually change channels.



2. Functional

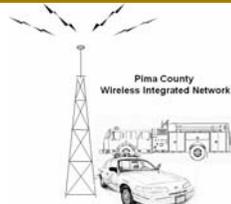
The new system needs to be reliable and have redundancy and fault tolerance built into it.

3. Technical

Apparatus and ambulances should have access to CAD records, mobile mapping, building mapping, and HazMat information in the vehicles via a mobile data network.

4. Interoperability Matrix

TABLE 2.4.1B shows the future direct interoperability requirements with other agencies for the local fire departments. Radio interoperability should include a network gateway to facilitate communications with agencies not currently accessible.



D. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - Rural Metro/Southwest Ambulance  
South Tucson Fire Department  
Corona de Tucson Fire Department  
Elephant Head Fire Department

**File Name:** - 030106 County Fire Department Final 1  
Interview Record.doc

**Date of Interview:** - March 01, 2006

**Location of Interview:** - Pima County Sheriff Department

**CTA Interviewer:** - Harry Rote and Roscoe Mitchell

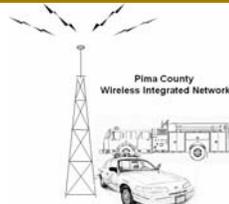
The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. Rural Metro/Southwest Ambulance is responsible for 124 square miles and covers a majority of Pima County. Rural Metro/Southwest is located at 3759 North Commerce Drive, Tucson, in a 20,000 square foot building. The fleet maintenance operations reside at this location.
2. The Elephant Head Fire Department is staffed with volunteer firefighters.
3. Corona de Tucson Fire Department is responsible for approximately 30 square miles.

**Present Situation**

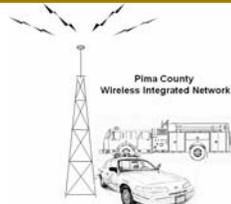
1. Elephant Head personnel currently have pagers and portables equipped with Motorola quick call. There are 30 firefighters on staff. The fire trucks are stationed at the firefighters homes. During an emergency fire call, 3-4 units will respond. Ambulances do not transport patients. The department has 7-8 apparatus.



2. The Elephant Head Fire Department's primary radio transmitter site is located at Elephant Head Peak.
3. The Corona de Tucson Fire Department is currently upgrading one tower and building at their stations. The tower is a 120 foot self supporting tower located at 99 Thistle Avenue.
4. The Corona de Tucson Fire Department is dispatched through tone alerts to pagers and radios. Operations are 24 hours per day staffed with 5 people during day and 3 people during the night. The department has 8 trucks and 1 ambulance. The ambulance does not transport.
5. Corona de Tucson Fire Department utilizes two frequencies; both are used in simplex or talk around mode.
6. Rural Metro/ Southwest Ambulance currently have 150 vehicles, and 40 dispatchers that work two (2) 12 hour shifts with 8-10 to 10 dispatchers staffed per shift. There are plans to add 10 dispatchers over the next 2 years. They also utilize a helicopter service (Copter Line) that operates from St. Mary's Hospital.
7. Samuel Well and Graham area ambulances are dispatched at Rural Metro. They have 13 fire stations and 8 ambulance sites. Northwest Fire and Golder Ranch are dispatched from Tucson Fire.
8. Rural Metro / Southwest Ambulance radios are mobiles: TK730, TK830, TK2170, TK2180, TK790, and TK890; portables 272GE, 273GE, TK280, and TK380. Consoles for dispatch are Centracom Gold Elite. CAD is GEAC, text based CAD, and NFIR (national fire record management system).
9. Rural Metro has a 60 foot self supporting tower with 1 UHF yagi, 3 VHF vertical, 3 VHF yagi for Rural Metro Elephant Head repeater, South Tucson repeater, and Green Valley. Repeater at 32 North Stone is VHF 153.150 Simplex, 159.090 TX, 153.815 RX medical dispatch only, and 155.75 after dispatch use. Mt. Lemmon is backup for Southwest Tucson and prime for Pinal County.

**Present Problems**

1. Elephant Head Fire Department would like better radio coverage.



2. Corona de Tucson Fire Department has coverage problems down Sahuarita highway and can not talk to Med line on highway 10.

**Future Requirements**

1. All departments would like to have access to CAD records, mobile mapping, building mapping, and HazMat.
2. Rural Metro / Southwest Ambulance would like to have mobile data capabilities in the future.

**Additional Comments**

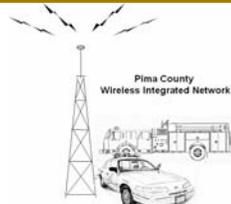
1. Survey forms were provided by the organizations at each of the sites.

The draft of this record was sent to Captain Paul Wilson on March 31, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:  
Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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## 2. Radio Usage Form

Pima County, Arizona Wireless Integrated Network (PCWIN)	Radio Usage Information Survey February 7, 2006
<b>CTA COMMUNICATIONS RADIO USAGE INFORMATION SURVEY</b>	
<p>Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.</p>	
<hr/>	
<b>Organization/Agency Name:</b> <u>Rural Metro Fire Department - Southwest Ambulance</u>	
<b>Contact Name:</b> <u>Matthew Perlman</u>	<b>Position:</b> _____
<b>Phone:</b> <u>520-407-4397</u> <b>Email:</b> <u>Matt_Perlman@rmetro.com</u>	
<hr/>	
<p>Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.</p>	
<b>I: RADIO UTILIZATION CURRENT SITUATION</b>	
a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.	
b. Shifts are listed in the table below (Columns C – F). Please quantify the number of <u>employees</u> that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.	
<hr/>	
	Page 1 of 7



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4
Mobiles	250	175 VHF			
Portables	650	400 VHF	250 UHF		
Control Stations	30	25 VHF Station Alerting			
Paging units	25	25 VHF			
Other Devices					

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

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c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks	5	Yes
Water Tender	7	Yes
Pumper/ Engine	20	Yes
Ladder Truck	1	Yes
Ambulance	75	Yes
Patrol Vehicles	0	N/A



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

Jail Transport	<input checked="" type="checkbox"/>	N/A
Special Ops	4	Yes
Vehicular Repeaters *	<input checked="" type="checkbox"/>	N/A
Disposal Collector	<input checked="" type="checkbox"/>	N/A
Maintenance Truck	5	
Utility Trucks	2	
Highway Maintenance	<input checked="" type="checkbox"/>	
Vans	<input checked="" type="checkbox"/>	
Buses	<input checked="" type="checkbox"/>	
Cars	<input checked="" type="checkbox"/>	
Other (Please Describe) <i>Administrative</i>	25	

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

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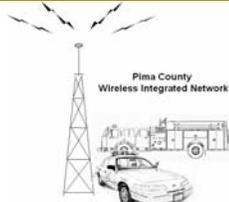
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d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)









Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	3%	3%	3%	3%
Portables	5%	5%	5%	5%
Control Stations	1%	1%	1%	1%
Paging units	1%	1%	1%	1%
Other Devices				

**Clarifications:**

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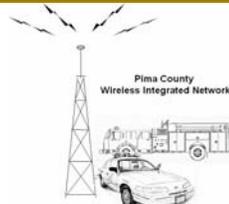
Thank you for your assistance.

Please hand this survey in during your interview or return to:

CTA Communications, Inc. Fax: (434) 239-9221  
 P.O. Box 4579 Phone: (434) 239-9200  
 Lynchburg, VA 24502-0579 PCWIN@ctacommunications.com

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

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### 3. Mobile Data Survey

Pima County, Arizona Wireless Integrated Network (PCWIN)	Mobile Data Information Survey February 7, 2006
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**CTA COMMUNICATIONS  
MOBILE DATA  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate mobile data as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:** Rural/Metro Fire Department - Southwest Ambulance  
**Contact Name:** Matthew Perlman      **Position:** \_\_\_\_\_  
**Phone:** 520-407-4397      **Email:** Math-Perlman@hmetro.com

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**INSTRUCTIONS:** Sections I and II: All interviewees complete. Section III: Only one administrator from each agency or department needs to complete

**I: CURRENT SITUATION**

Mobile data equipment do you currently have: None

Age: \_\_\_\_\_ Condition: \_\_\_\_\_ Adequate?: \_\_\_\_\_

Mobile data functions that you currently have and use:

Computer Aided Dispatch: \_\_\_\_\_ Name of CAD system: \_\_\_\_\_

Access to Records Management: \_\_\_\_\_ Name of RMS system: \_\_\_\_\_

Records functions available: \_\_\_\_\_

Field Reporting: \_\_\_\_\_ Automatic Vehicle Location (AVL): \_\_\_\_\_

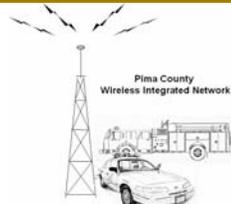
Email: \_\_\_\_\_ Outlook or web-based? \_\_\_\_\_

Text Messaging:    Car to car: \_\_\_\_\_    Car to dispatch: \_\_\_\_\_

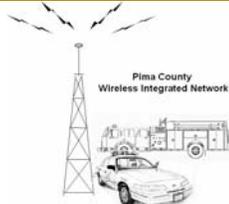
Query (Person, Vehicle, Property, etc) Local: \_\_\_\_\_ State: \_\_\_\_\_ National: \_\_\_\_\_

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 Page 1 of 4



Pima County, Arizona Wireless Integrated Network (PCWIN)	Mobile Data Information Survey February 7, 2006
Other functions: _____	
Other software: _____	
Problems or concerns with your current capabilities: _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	
<b>II: FUTURE NEEDS AND DESIRES:</b>	
Tell us your opinion about your mobile information needs. Please mark as near term or longer term. Also mark needs and desires. List: <b>functions</b> (CAD dispatch, AVL, etc), <b>geographical areas</b> where you need service, <b>information sources</b> (records, databases, mug shots, etc) you need to access to, <b>information sharing</b> (messaging, other data sources) with other agencies, departments, <b>equipment upgrades</b> you need, <b>personal safety</b> considerations, and <b>performance</b> improvements.	
<i>Currently, we are in the process of evaluating our needs. We are interested in AVL, Automated dispatch, Mapping, ETC.</i>	
_____ _____ _____ _____ _____ _____ _____ _____ _____	
	Page 2 of 4



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Mobile Data Information Survey  
 February 7, 2006

**III: MOBILE DATA QUANTITIES – CURRENT AND FUTURE**

*(One administrator per agency or department should complete this section for the group.)*

Types of mobile data networks currently in use:

Private Service (DataTac, etc, # of channels, and frequency band): \_\_\_\_\_

Commercial Service (Verizon, etc) : Verizon

Wi-Fi : \_\_\_\_\_

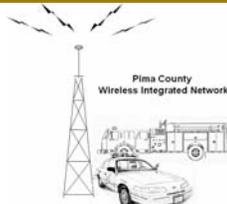
Other (Describe): \_\_\_\_\_

Mobile data equipment sets currently in use:

Device	USAGE				
	Currently in service		Estimated Future Needs (use either number of units or % growth)		
	On Hand	Un-met Needs	2006 to 2011	2011 to 2016	2016 to 2021
Wireless Laptops in Vehicles	6	25	250	5%	5%
Wireless Handhelds (PDA's)					
AVL equipped			250	5%	5%
Digital Pagers	600		5%	5%	5%
Tone Voice Pagers	50		1%	1%	1%
Other Devices _____					

Please estimate the number of transactions your typical user would perform assuming he was equipped with an adequate mobile data service.

Type of Transaction	Estimated number of transactions	
	per hour	or per day
CAD Dispatch		
Query (license checks, vehicle registrations, wanted persons, property checks)		
Car-to-car or car-to-dispatch message		
Status updates		





4. Computer Systems Checklist – Fire & EMS Departments

None.

5. Documentation Provided

- Fire Rescue Frequency Bands
- WIN Frequency Self Evaluation

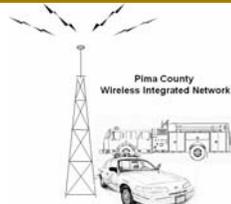


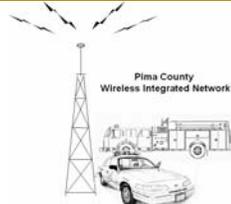
TABLE 2.4.1A Existing Interoperability

Agency Types		Agency Types		Agency Types			
Rural	Metro Fire	Rural	Metro Fire	Rural	Metro Fire		
Southwest	Ambulance	Southwest	Ambulance	Southwest	Ambulance		
Fire Agencies Ajo/Gibson Vol. FD Arivaca Vol. FD Avra Valley Fire District Corona de Tucson Fire District Drexel Heights Fire District Elephant Head Vol. FD Golder Ranch Fire District Green Valley Fire District Helmet Peak Fire District Mt. Lemmon Fire District Northwest Fire District Pascua Pueblo FD Picture Rocks Fire District Rincon Valley Fire District Rural Metro Fire/Southwest Ambulance South Tucson FD Three Points FD Tohono O' odham FD Tucson Airport Authority FD Tucson FD Ajo Ambulance Why Fire District		Police and Emergency Services Agencies Marana PD Oro Valley PD Pascua Yaqui PD Pima College Dept. of Public Safety Pima County OEM & Homeland Security Pima County Sheriff's Dept. Pima County Sheriff's Dept. - Ajo Sahuarita PD South Tucson PD Tohono O'odham Tribal Police Tucson Airport Authority PD Tucson PD University of Arizona Police		Federal Agencies Bureau of Alcohol, Tobacco, Firearms & Explosives Customs and Border Protection Drug Enforcement Administration Emergency Man. & Homeland Security Federal Bureau of Investigation Immigration and Customs Enforcement National Park Service Bureau of Land Management U.S. Fish & Wildlife U.S. Forest Service U.S. Marshals Service			
						State Arizona Dept. of Public Safety Arizona Game and Fish	



TABLE 2.4.1B Future Interoperability

Agency Types		Rural Metro Fire/Southwest Ambulance	
	Ajo/Gibson Vol. FD		
	Arivaca Vol. FD		
	Ayva Valley Fire District		
X	Corona de Tucson Fire District		
	Drexel Heights Fire District		
X	Elephant Head Vol. FD		
	Golder Ranch Fire District		
	Green Valley Fire District		
	Helmet Peak Fire District		
	Mt. Lemmon Fire District		
	Northwest Fire District		
	Pascua Pueblo FD		
	Picture Rocks Fire District		
	Rincon Valley Fire District		
	Rural Metro Southwest Ambulance		
X	South Tucson FD		
	Three Points FD		
	Tohono O'odham FD		
	Tucson Airport Authority FD		
X	Tucson FD		
	Ajo Ambulance		
	Why Fire District		
<b>Fire Agencies</b>			
Agency Types		Rural Metro Fire/Southwest Ambul	
	Marana PD		
	Oro Valley PD		
	Pascua Yaqui PD		
	Pima College Dept. of Public Safety		
	Pima County OEM & Homeland Security		
X	Pima County Sheriff's Dept.		
	Pima County Sheriff's Dept. - Ajo		
	Sahuarita PD		
	South Tucson PD		
	Tohono O'odham Tribal Police		
	Tucson Airport Authority		
X	Tucson PD		
	University of Arizona Police		
<b>Police and Emergency Services Agencies</b>			
Agency Types		Rural Metro Fire/Southwest Ambul	
	Bureau of Alcohol, Tobacco, Firearms & Explosives		
	Customs and Border Protection		
	Drug Enforcement Administration		
	Emergency Man. & Homeland Security		
	Federal Bureau of Investigation		
	Immigration and Customs Enforcement		
	National Park Service		
	Bureau of Land Management		
	U.S. Fish & Wildlife		
	U.S. Forest Service		
	U.S. Marshals Service		
X	Arizona Dept. of Public Safety		
	Arizona Game and Fish		
		<b>Federal Agencies</b>	
		<b>Agencies</b>	



## 2.4.2 Cochise County

### A. Current Environment

#### 1. System Description

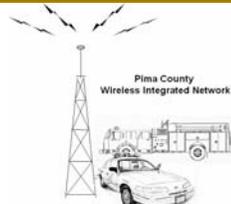
Cochise County has just finished construction of a new radio infrastructure to serve County functions including Sheriff, highway maintenance and others. The system is not really intended to be a regional network serving local law enforcement but could be expanded in that direction.

The new system is a VHF conventional analog simulcast design using 5 channels at 5 tower sites. Coverage is currently designed for mobile operation but may have voted receiver sites added sometime in the future to better support portables. Narrowband infrastructure was provided by Tait and user equipment comes from various vendors.

VHF frequency scarcity, even with the additional channels from narrowbanding, is a problem. As narrowband channels are deployed, careful coordination is required to maintain harmonious operation among neighbors with wideband channels.

Douglas gets police dispatch channel jamming and eavesdropping from drug runners. The city is looking at technical solutions like P25 digital, encryption and adjustment of receiver PL tones to help alleviate the problems.

The county is not particularly excited about new spectrum in 700 MHz because agreements are not yet in place to avoid Mexican TV channel conflicts.



## 2. Interoperability

A VHF interoperability channel called county mutual aid is made available to all law enforcement and federal agencies especially Border Patrol.

The Sheriff department works regularly with several of the Federal agencies. These Federal agencies generally operate on the sheriff's channels. The county monitors federal channels but rarely operates on them.

The Pima County Sheriff's office interacts on a regular basis with the Sheriff's Department in Cochise County

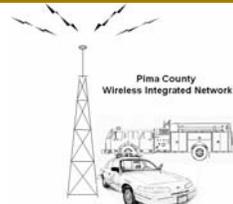
The main interoperability problem is between Cochise County on VHF and DPS using UHF equipment.

### B. Desired Interoperability Environment

The county is interested and open to coordinated communications with Pima and the surrounding counties.

Cochise County is very open to communications with Pima County. One option is to link dispatch. Cochise has a 6 site microwave network. The closest tower to Pima is located at the Texas Canyon site in the Dragoon area. Cochise encourages a microwave link and some set of mutual aid frequencies operable along the border from Yuma to Douglas.

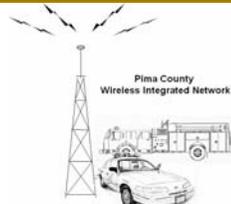
The Sheriff is leading an initiative to plan for regional communications. An early meeting involving local police and fire is planned for this month. The main goal of such an initiative would be to provide interoperable communications for county public safety and local law enforcement. One of the benefits would be pooling resources such as tower sites and frequencies. The County is open to all technologies including digital and trunking as required by the operation. No decisions have been made as the project is very early in the planning process.



Early discussions are occurring about a type of regional dispatch from Sierra Vista. Localities that may participate could include police and fire operations in Benson, Sierra Vista, Bisbee and Tombstone. The County has 26 fire districts.

Funding is not yet secured for any regional project. Cochise will depend on grants and is waiting in line for a requested \$8M.

Fire departments in eastern Pima County need to communicate with fire departments in Cochise County using VHF channels. Cochise County's future plans include pooling VHF resources for improved interoperable communications between county public safety and local law enforcement.



C. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

**Organization/Agency:** - Cochise County

**File Name:** - 031006 Cochise County Interview Record  
Final.doc

**Date of Interview:** - March 10, 2006

**Location of Interview:** - CTA Communications, Lynchburg, Va  
Teleconference

**Persons Interviewed:** - Pablo Duarte, Radio Comm. Engineer, Cochise  
County

**CTA Interviewers:** - David Anderson, CTA Senior Systems Engineer  
Roscoe Mitchell, CTA Communications  
Specialist

The following points were conveyed to CTA during this teleconference interview:

Organization and Responsibilities

1. Mr. Duarte is responsible for radio recommendations, design, implementation and maintenance of the County communications.

Present Situation

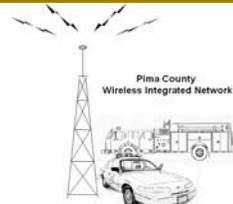
1. Cochise County has just finished construction of the new radio infrastructure to serve County functions including Sheriff, highway maintenance and others. The system is not really intended to be a regional network serving local law enforcement but could be expanded in that direction.
2. The new system is a VHF conventional analog simulcast design using 5 channels at 5 tower sites. Coverage is currently designed for mobile operation but may have voted receiver sites added sometime in the future to better support portables. Narrowband infrastructure was provided by Tait and user equipment comes from various vendors.

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CTA Communications, Inc.

1

Lynchburg, VA



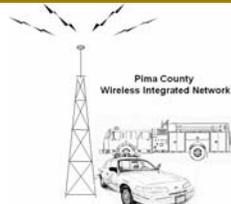
3. The Sheriff is leading an initiative to plan for regional communications. An early meeting involving local police and fire is planned for this month. The main goal of such an initiative would be to provide interoperable communications for county public safety and local law enforcement. One of the benefits would be pooling resources such as tower sites and frequencies. The County is open to all technologies including digital and trunking as required by the operation. No decisions have been made as the project is very early in the planning process.
4. A VHF interoperability channel called county mutual aid is made available to all law enforcement and federal agencies especially Border Patrol.
5. The Sheriff department works regularly with several of the Federal agencies. These Federal agencies generally operate on the sheriff's channels. The county monitors federal channels but rarely operates on them.
6. Early discussions are occurring about a type of regional dispatch from Sierra Vista. Localities that may participate could include police and fire operations in Benson, Sierra Vista, Bisbee and Tombstone. The County has 26 fire districts.

Present Problems

1. The main interoperability problem is with DPS because they are on UHF equipment.
2. VHF frequency scarcity, even with the additional channels from narrowbanding, is a problem. When narrowband channels are set up, often there must be careful coordination and adjacent equipment replacement to maintain harmonious operation.
3. Douglas gets police dispatch channel jamming and eavesdropping from drug runners. The city is looking at technical solutions like P25 digital, encryption and adjustment of receiver PL tones to help alleviate the problems.
4. The county is not particularly excited about new spectrum in 700 MHz because agreements are not yet in place to avoid Mexican TV channel conflicts.

Future Requirements

1. Cochise County is very open to communications with Pima County. One option is to link dispatch. Cochise has a 6 site microwave network. The closest tower to Pima is located at the Texas Canyon site in the Dragoon area.



2. Cochise encourages a microwave link and some set of mutual aid frequencies operable along the border from Yuma to Douglas.
3. Funding is not yet secured for any regional project. Cochise will depend on grants and is waiting in line for a requested \$8M.
4. The county is interested and open to coordinated communications with Pima and the surrounding counties.

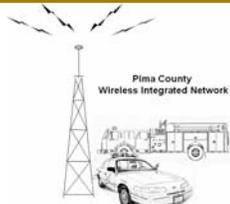
The draft of this record was sent to Captain Paul Wilson on March 28, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

**Interviewee Name & Address:**

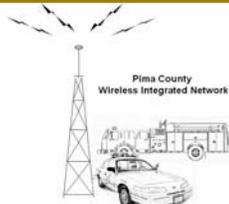
Captain Paul Wilson, PCSO  
1750 E. Benson Highway  
Tucson, AZ 85714

MAFILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\031006 Cochise County Final.doc



2. Documentation Provided

None.



### 2.4.3 Pinal County

#### A. Current Environment

##### 1. System Description

Curtis is responsible for securing the communications facilities for the all Public safety departments in Pinal County. Curtis joined the County about three years ago after a career with the Michigan State Police. The County is currently pursuing three simultaneous initiatives to improve Public Safety communications.

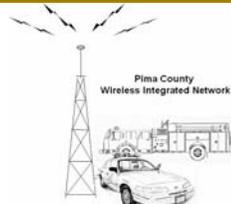
- 1) License more VHF spectrum and build towers to shore up weak coverage areas
- 2) Begin development of a Pinal County plan for 700 MHz radio
- 3) Forming a consortium of Law and Fire agencies to pool assets for new radio

Pinal County is the bedroom community for many people who work north in Phoenix or south in Tucson. Forty percent of the projected state population growth will occur in Pinal County. New population areas will extend from Phoenix southward along I-10 and from Marana northward along I-10, meeting in Casa Grande.

Western Pinal County is a high traffic corridor for drug trafficking and illegal immigration.

Florence is the County seat and home to several prisons, the State Penitentiary, a large private prison, and a brand new County prison. The County encompasses 5,374 square miles with Apache Junction and Casa Grande as the two largest population areas.

County public safety radio currently operates from two tower sites, Pinal Peak and Sacaton.



County public safety operates on seven channels with repeaters populated between these two towers. There are nine identified dead zones of significant size in the County. The County CAD system is Spillman.

The County recognizes that while plans are being drawn up for next generation communications, existing systems must be maintained and expanded as much as possible in the meantime. The County is actively pursuing new lower band spectrum.

Licensable lower band spectrum is scarce. Pinal is about to receive license to the first two new VHF pairs in 23 years. UHF seems a little easier. Some new licenses, such as some low power campus frequencies, have required coordination with either Phoenix or Tucson. Law enforcement and Fire (and other public safety) apparently operate using a mix of VHF and UHF. Close proximity to Phoenix/Mesa rules out licensable 800 MHz spectrum.

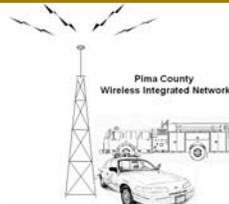
The two new VHF pairs are being placed on towers at Maricopa and at Pan Quemado to cover the area most critically in need, the western part of the County. Additional spectrum is needed for bolstering coverage in the northeast near Superior and southeast near San Manuel.

## 2. Interoperability

The Pima County Sheriff's office interacts on a regular basis with Sheriff's Department in Pinal County. Pinal Sheriff's Department currently communicates in the VHF band.

### B. Desired Interoperability Environment

Pinal County indicates that the State of Arizona's plans for a statewide 700 MHz system sets the long term direction for Pinal County as 700 MHz. The State system is currently projected to roll out in 7 – 8 years.



Considering the near term immanent population growth, Pinal really cannot afford to wait that long to build a county system integrated with the State plan. The idea is build a system that aligns with State plans, but is available on an earlier timeline.

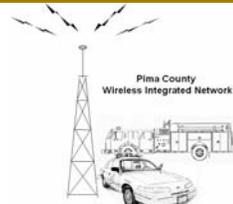
The County sees 700 MHz as about the only viable option for needed spectrum. The State 700 Frequency Allocation plan has been submitted (with hopes for approval). Counties could begin licensing as early as this year.

The County is beginning to meet this year on the formation of a plan for 700 MHz radio in Pinal County. This direction at this point is just in the planning stages.

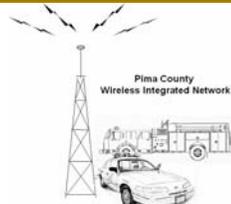
The County has organized beginning meetings with all law enforcement, fire, and medical agencies in the County in hopes of forming a consortium. The goal is to understand each others needs, evaluate collective assets and agree on how to go forward with future radio communications. This sounds similar to efforts made in Santa Cruz County where VHF spectrum has been pooled to plan a new radio infrastructure.

Pinal is interested in sharing assets such as tower sites between neighboring Counties. Pan Quemado (a DPS site) is near the border and is included in both Pinal and Pima's plans. Pinal has no microwave at this time however; Pinal may have some sites suitable for future microwave that could provide a shared benefit to both counties. Pima may need a northern path to Tohono O'Odham or Ajo, and Pinal certainly needs good radio site coverage in the southwest area of the county.

The County has invested some recent grant money on mobile interoperability and coverage solutions. Several ACU 1000's have been deployed. The County is particularly pleased with the usefulness of a local area repeater system made by Mobile Satellite Ventures.



Fire departments in northeast Pima County including Golder Ranch and Oro Valley need to communicate with fire departments in Pinal County using a mix of VHF and UHF channels. Pinal County's future plans included additional VHF and UHF channels.



C. Supporting Information

1. Interview Record

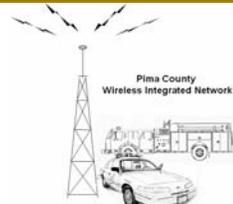
CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Pinal County  
File Name: 041806PinalCounty Final.doc  
Date of Interview: April 19, 2006  
Location of Interview: Teleconference  
Persons Interviewed: Curtis Fonger, Pinal Co. Communications Manager  
CTA Interviewers: David Anderson, Senior Systems Engineer

The following points were conveyed to CTA during this interview:

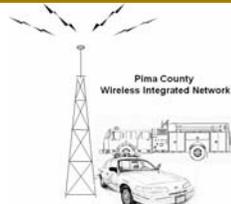
Organization and Responsibilities

1. Curtis is responsible for securing the communications facilities for the all Public safety departments in Pinal County. Curtis joined the County about three years ago after a career with the Michigan State Police. The County is currently pursuing three simultaneous initiatives to improve Public Safety communications.
  - 1) License more VHF spectrum and build towers to shore up weak coverage areas
  - 2) Begin development of a Pinal County plan for 700 MHz radio
  - 3) Forming a consortium of Law and Fire agencies to pool assets for new radio
2. Pinal County is the bedroom community for many people who work north in Phoenix or south in Tucson. Forty percent of the projected state population growth is will occur in Pinal County. New population will grow from Phoenix southward along I 10 and from Marana northward along I 10, until in meets in Casa Grande.
3. Western Pinal County is a high traffic corridor for drug trafficking and illegal immigration.



Present Situation

1. Florence is the County seat and home to several prisons, the State Penitentiary, a large private prison, and brand new County prison. The County encompasses 5,374 square miles with Apache Junction and Casa Grande as the two largest population areas.
2. County public safety radio currently operates from two tower sites, Pinal Peak and Sacaton. County public safety operates on seven channels with repeaters populated between these two towers. There are nine identified dead zones of significant size in the County. The County CAD system is Spillman.
3. The County recognizes that while plans are being drawn up for next generation communications, existing systems must be maintained and expanded as much as possible in the meantime. The County is actively pursuing new lower band spectrum.
4. Licensable lower band spectrum is scarce. Pinal is about to receive license to the first two new VHF pairs in 23 years. UHF seems a little easier. Some new licenses, such as some low power campus frequencies, have required coordination with either Phoenix or Tucson. Law enforcement and Fire (and other public safety) apparently operate using a mix of VHF and UHF. Close proximity to Phoenix/Mesa rules out licensable 800 MHz spectrum.
5. The two new VHF pairs are being placed on towers at Maricopa and at Pan Quemado to cover the area most critically in need, the western part of the County. Additional spectrum is needed for bolstering coverage in the northeast near Superior and southeast near San Manuel.
6. Pinal County indicates that the State of Arizona's plans for a statewide 700 MHz system determines the long term direction for Pinal County as 700 MHz. The State system is currently projected to roll out in 7 – 8 years. Considering the near term immanent population growth, Pinal really cannot afford to wait that long to build a county system integrated with the State plan. The idea is build a system that aligns with State plans but on an earlier timeline.
7. The County sees 700 MHz as about the only viable option for needed spectrum. The State 700 Frequency Allocation plan has been submitted (with hopes for approval). Counties could begin licensing as early as this year.



8. The County is beginning to meet this year on the formation of a plan for 700 MHz radio in Pinal County. This direction at this point is just in the planning stages.
9. The County has organized beginning meetings with all law enforcement, fire, and medical agencies in the County in hopes of forming a consortium. The goal is to understand each others needs, evaluate collective assets and agree on how to go forward with future radio communications. This sounds similar to efforts made in Santa Cruz County where VHF spectrum has been pooled to plan a new radio infrastructure.

Future Requirements

1. Pinal is interested in sharing assets such as tower sites between neighboring Counties. Pan Quemado (a DPS site) is near the border and is included in both Pinal's and Pima's plans. Pinal has no microwave at this time however; Pinal may have some sites suitable for future microwave that could provide a shared benefit to both counties. Pima may need a northern path to Tohono O'Odham or Ajo, and Pinal certainly needs good radio site coverage in the southwest area of the county.
2. The County has invested some recent grant money on mobile interoperability and coverage solutions. Several ACU 1000's have been deployed. The County is particularly pleased with the usefulness of a local area repeater system made by Mobile Satellite Ventures. We will investigate this product.

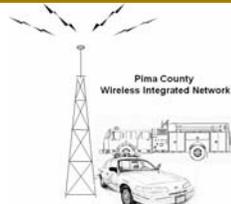
The draft of this record was sent to Captain Paul Wilson on April 19, 2006.

Corrected draft was returned to CTA Communications on April 20, 2006.

Interviewee Name & Address:  
Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

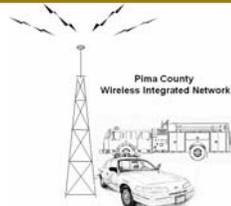
Reviewed 04/20/06 Captain Paul Wilson

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Planning\interview\Final\041806PinalCountyFINAL.doc



2. Documentation Provided

None.



#### 2.4.4 Phoenix/Mesa System

##### A. Current Interoperability Environment

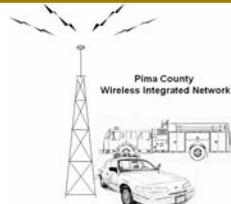
##### 1. System Description

The Phoenix/Mesa (P/M) radio system is a very large Motorola P25 800 MHz network. The core of the system is two simulcast systems (one zone each) with identical coverage footprint serving Phoenix police and fire. Another simulcast system (separate zone) covers Mesa. In total, five simulcast systems and several Intelli-repeater sites are set up in an overall three-zone hierarchy. Implementation of the Phoenix / Mesa P-25 system began in 2001. At the time, both Phoenix and Mesa seemed to be going down the same path for radio needs so they decided to join forces and develop a joint regional radio system.

Competitive subscriber procurement has been a reality for P/M since the beginning. P/M performed rigorous qualification of all major vendors. P/M purchased radios from Motorola, EF Johnson, and Kenwood. The radios from all vendors generally work well.

Aircraft operation was initially expected to be troublesome with ground-based simulcast technology. Aircraft operation with simulcast has proven in practice not to be an issue. P/M uses Technosonic aircraft radios which contain multiple repackaged standard LMR radios. Older ones contained EF Johnson radios. The current units contain three Motorola XTS 5000 and work well.

P/M is beginning to consider the purchase of M/A-COM radios. M/A-COM has only completed one day of basic function testing to date. DPS is requesting the purchase of M/A-COM products for use on the system.



All subscriber gear that P/M uses is standard product from all vendors. This means that P/M gear and any future Pima P25 gear should operate across systems without problems. In P/M experience, the lowest cost P25 trunked radio is a little less than \$1500 available from either Kenwood or Motorola. Kenwood does not currently offer combined 700 and 800 MHz radios.

P/M currently has OTAR but not OTAP. There is concern regarding channel loading with OTAP. Reprogramming of 11,000 radios for each system change is a large task.

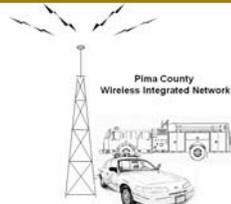
Some of the state allocation of 700 MHz channels is currently built into the P/M system. Operation is on trial basis and works well. Future expansion into 700MHz is planned.

P/M has fire and police mobile data systems. Police has a late 1980's RD-LAP system. Fire has a commercial wireless system that started using CDPD and now has migrated to some newer commercial wireless system.

The Phoenix part of the system consists of 9 sites with 20 simulcast channels. The Mesa component of the system consists of 9 sites with 16 simulcast channels. The P/M system is used by various vendors as a test bed for P-25 based products

Some Fire Departments have their reservations about 800 MHz trunking. Apache, Gilbert Junction, and Mesa fire departments operate on the P/M system. Phoenix and their fire partners are still on VHF. They have 800 MHz equipment for interoperability with police.

Fire requires simplex fireground channels. Analog is preferred but not absolutely required. Firegrounds must be routed back to dispatch for two reasons: recording and second level of incident command including personnel safety.



Two approaches to the fireground monitor have been considered:

- Method A - Put in a TX/RX conventional overlay to pick up the firegrounds and bring them back to dispatch. Approximately a \$50M proposition.
- Method B - Install Futurecomm in-band vehicular repeaters in all fire apparatus to patch the fireground in use to a trunked talkgroup for relay back to dispatch over the infrastructure. Approximately a \$5M proposition.

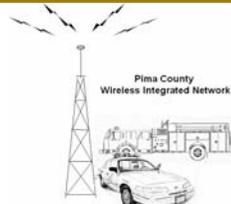
Method B is favored at this point. Trials will be starting in 2006.

The state is beginning to plan statewide communications but is limited by the budget. With participation in a statewide concept, P/M would be concerned about who pays for needed capacity additions.

The Department of Treasury is planning for P/M system to serve as a demo for the IWIN in Arizona. The plan is to add a 5-6 site Federal VHF overlay on the P/M network that would serve the local Federal agency community.

## 2. Interoperability

The Phoenix-Mesa system is a very large Motorola P25 MHz network. The core of the system is two simulcast systems (one zone each) with identical coverage footprints serving Phoenix police and fire. Another simulcast system (separate zone) covers Mesa. In total, five simulcast systems and several Intelli-repeater sites are set up in an overall three-zone hierarchy.



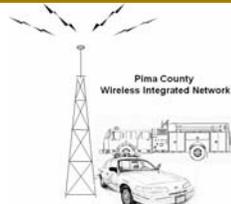
B. Desired Interoperability Environment

Interoperability options for PCWIN and P/M:

- Assuming PCWIN is 700/800 MHz P25, radios could easily cross systems.
- Depending on PCWIN vendor, the infrastructure linkage could either be direct same-vendor ISSI or through the backbone network using gateways. Completely linked “shared system” offers the most operational flexibility but may not be required. The biggest problem with foreign system operation is loss of contact with home dispatch.

Assuming that the PCWIN system is compatible with the P/M system Phoenix is open to linking the systems at the zone controllers. Advantages include facilitating interoperability and sharing coverage in the areas between the two regions.

If the PCWIN system is a 700/800 MHz Project 25 system, radios could easily cross systems. The infrastructure linkage could either be direct same-vendor protocol or through the backbone network using gateways. A completely linked or “shared system” offers the most operational flexibility but may not be required.



C. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Phoenix Mesa Project

File Name: 022406 Phoenix Mesa Interview Record Final.doc

Date of Interview: February 24, 2006

Location of Interview: PCSD Administration Building, Teleconference

Persons Interviewed: Jeff Miner, City of Phoenix Radio Operations Manager

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

The following points were conveyed to CTA during this interview:

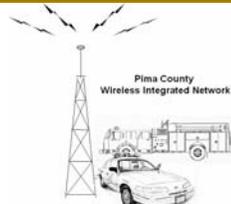
Organization and Responsibilities

1. Jeff is currently the operations manager for the City of Phoenix serving as the administrator for operation of the Phoenix/Mesa (P/M) communications network. Jeff has 13 years with the city and 15 years with the state. He has been involved with this large radio project from the beginning.
2. The P/M radio system is a very large Motorola P25 800 MHz network. The core of the system is two simulcast systems (one zone each) with identical coverage footprint serving Phoenix police and fire. Another simulcast system (separate zone) covers Mesa. In total, five simulcast systems and several Intelli-repeater sites are set up in an overall three-zone hierarchy.
3. Implementation of the Phoenix / Mesa P-25 system began in 2001. At the time, both Phoenix and Mesa seemed to be going down the same path for radio needs so they decided to join forces and develop a joint regional radio system.



Present Situation

1. Competitive subscriber procurement has been a reality for P/M since the beginning. P/M performed rigorous qualification of all major vendors. P/M purchased radios from Motorola, EF Johnson, and Kenwood. The radios from all vendors generally work well.
2. Aircraft operation was initially expected to be troublesome with ground-based simulcast technology. Aircraft operation with simulcast has proven in practice not to be an issue. P/M uses Technosonic aircraft radios which contain multiple repackaged standard LMR radios. Older ones contained EF Johnson radios. The current units contain three Motorola XTS 5000 and work well.
3. P/M is beginning to consider the purchase of M/A-COM radios. M/A-COM has only completed one day of basic function testing to date. DPS is requesting the purchase of M/A-COM products for use on the system.
4. All subscriber gear that P/M uses is standard product from all vendors. This means that P/M gear and any future Pima P25 gear should operate across systems without problems. In P/M experience, the lowest cost P25 trunked radio is a little less than \$1500 available from either Kenwood or Motorola. Kenwood does not currently offer combined 700 and 800 MHz radios.
5. They currently have OTAR but not OTAP. There is concern regarding channel loading with OTAP. The reprogramming of 11,000 radios for each system change is a large task.
6. Some of the state allocation of 700 MHz channels is currently built into the P/M system. Operation is on trial basis and works well. Future expansion into 700MHz is planned.
7. Jimmy Downs of the Department of Treasury is planning for P/M system to serve as a demo for the IWIN in Arizona. The plan is to add a 5-6 site Federal VHF overlay on the P/M network that would serve the local Federal agency community.
8. Interoperability options for PCWIN and P/M:
  - Assuming PCWIN is 700/800 MHz P25, radios could easily cross systems.



- Depending on PCWIN vendor, the infrastructure linkage could either be direct same-vendor ISSI or through the backbone network using gateways. Completely linked “shared system” offers the most operational flexibility but may not be required. The biggest problem with foreign system operation is loss of contact with home dispatch.
9. The state is beginning to plan statewide communications but is limited by the budget. With participation in a statewide concept, P/M would be concerned about who pays for needed capacity increases.
  10. P/M has fire and police mobile data systems. Police has a late 1980’s RD-LAP system. Fire has a commercial wireless system that started using CDPD and now has migrated to some newer commercial wireless system.
  11. The Phoenix part of the system consists of 9 sites with 20 simulcast channels. The Mesa component of the system consists of 9 sites with 16 simulcast channels. The P/M system is used by various vendors as a test bed for P-25 based products.

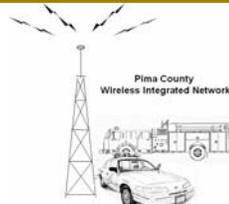
Present Problems

1. Fire acceptance of 800 MHz trunking. Apache, Gilbert Junction, and Mesa fire departments operate on the P/M system. Phoenix and their fire partners are still on VHF. They have 800 MHz equipment for interoperability with police.
2. Fire requires simplex fireground channels. Analog is preferred but not absolutely required. Firegrounds must be routed back to dispatch for two reasons: recording and second level of incident command including personnel safety.
3. Two approaches to the fireground monitor have been considered:

Method A - Put in a TX/RX conventional overlay to pick up the firegrounds and bring them back to dispatch. Approximately a \$50M proposition.

Method B - Install Futurecomm in-band vehicular repeaters in all fire apparatus to patch the fireground in use to a trunked talkgroup for relay back to dispatch over the infrastructure. Approximately a \$5M proposition.

Method B is favored at this point. Trials will be starting in 2006.



4. The radio system seems to be a victim of its own success. A growing user base has the potential to start taxing the system. One challenge this presents is how to charge new users for the service provided so that system expansion and upkeep is maintained.

Future Requirements

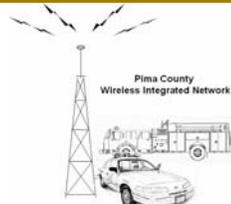
1. Mr. Minor stated that if the PCWIN system was compatible with the P/M system he could see them linking through a zone controller. This would be done to facilitate interoperability and increase the coverage area in remote areas between the two regions.

The draft of this record was sent to Captain Paul Wilson on April 4, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

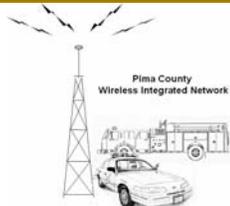
Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

MAFILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\022406 Phoenix Mesa  
Final.doc



2. Documentation Provided

None.



## 2.4.5 Santa Cruz County

### A. Current Environment

#### 1. System Description

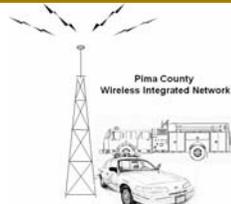
As director of emergency management, Mr. Shaboya is responsible for all aspects of emergency preparedness for Santa Cruz County. Mr. Shaboya also currently chairs the State of Arizona Regional Advisory Council. Mr. Lindsey of Canyon State Motorola Radio Shop is the technical person responsible for the communication systems for the county.

The state is divided into five regions for the purpose of emergency planning and grant funding. The local region consists of Yuma, Pima, Santa Cruz, and Cochise Counties.

The county recently completed an executive summary justifying a VHF trunked radio system. The purpose of the study is to attempt to utilize external funds potentially available to the county. VHF is the County's first choice of band for coverage in mountainous terrain, cost, and less interference from Mexico. Many agencies have agreed to pool their VHF spectrum resources. Santa Cruz County relies heavily on Pima County as backup and for help in emergency situations.

The county currently has six fire and three law enforcement agencies. These agencies have agreed to pool their frequency resources in a combined system.

The county has the city of Nogales, which is located at the Mexican border. It is also at the southern end of the "Canamex Corridor".



At their Red Mountain site, the county was going to lose a good location for their antenna(s) due to the IWIN project. However, funds have been obtained that will allow the construction of a new tower that will provide good antenna positioning for the county and IWIN.

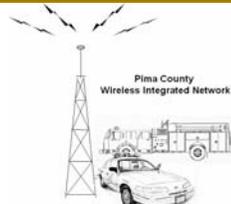
2. Interoperability

The Pima County Sheriff's office interacts on a regular basis with the Sheriff's Department in Santa Cruz County, especially along the I-19 corridor.

B. Desired Interoperability Environment

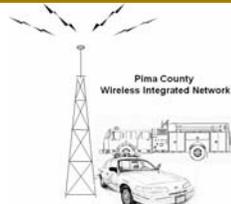
Santa Cruz County is striving towards four goals in both the short and long term.

- The first goal is infrastructure - upgrade and modernize facilities. A new \$800 dispatch center has been built.
- Second Goal - Correct local coverage issues – a new \$1M VHF trunking system is going to cover the populated areas in the vicinity of Nogales.
- Third goal is interoperability – Be able to interoperate with Federal agencies such as Border Patrol and DEA and neighboring counties. A \$13M request has been placed for interoperable radios, communications vans, additional trunked infrastructure, and a CAD system.
- Fourth goal is Joint Communications Center – Complete a Joint Communications Center that will improve communications between County Sheriff and Nogales Police.



In addition, improve interoperability with Mexican counterparts. Note: This has already been accomplished with an ACU-1000 but it is not a permanent solution due to bureaucratic requirements.

Santa Cruz County has put together a plan for Project 25 interoperable radio technology. The six fire and three law enforcement agencies have pooled their VHF spectrum resources for future construction of countywide VHF communications.



C. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Santa Cruz County

File Name: 022406 Santa Cruz County Interview Record Final.doc

Date of Interview: February 24, 2006

Location of Interview: Pima County Sherriff's Office

Persons Interviewed: Louis Chaboya, Director of Emergency Management

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, Senior Communications Specialist

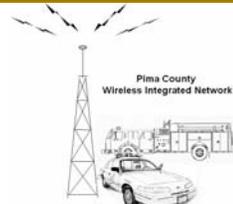
The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. As director of emergency management, Mr. Shaboya is responsible for all aspects of emergency preparedness for Santa Cruz County. Mr. Shaboya also currently chairs the State of Arizona Regional Advisory Council.
2. Mr. Lindsey of Canyon State Motorola Radio Shop (not present for the interview), is the technical person responsible for the communication systems for the county.
3. The state is divided into five regions for the purpose of emergency planning and grant funding. The local region consists of Yuma, Pima, Santa Cruz, and Cochise Counties.

Present Situation

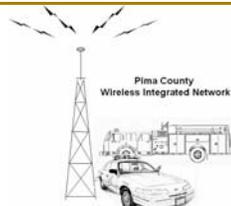
1. The county recently completed an executive summary justifying a VHF trunked radio system. The purpose of the study is to attempt to utilize external funds potentially available to the county. VHF is the County's first choice of band for coverage in mountainous terrain, cost, and less interference from Mexico. Many agencies have agreed to pool their VHF spectrum resources.



2. Santa Cruz County relies heavily on Pima County as backup and for help in emergency situations.
3. The county currently has six fire and three law enforcement agencies. These agencies have agreed to pool their frequency resources in a combined system.
4. The county has the city of Nogales, which is located at the Mexican border. It is also at the southern end of the “Canamex Corridor”.
5. At their Red Mountain site, the county was going to lose a good location for their antenna(s) due to the IWIN project. However, funds have been obtained that will allow the construction of a new tower that will provide good antenna positioning for the county and IWIN.

Future Requirements

1. Four goals mentioned that the county is striving to meet in both the short and long term. The first goal is infrastructure - upgrade and modernize facilities. A new \$800 dispatch center has been built.
2. Correct local coverage issues – a new \$1M VHF trunking system is going to cover the populated areas in the vicinity of Nogales.
3. Third goal is interoperability – Be able to interoperate with Federal agencies such as Border Patrol and DEA and neighboring counties. A \$13M request has been placed for interoperable radios, communications vans, additional trunked infrastructure, and a CAD system.
4. Fourth goal is Joint Communications Center – Complete a Joint Communications Center that will improve communications between County Sheriff and Nogales Police.
5. Improve interoperability with Mexican counterparts. Note: This has already been accomplished with an ACU-1000 but it is not a permanent solution due to bureaucratic requirements.

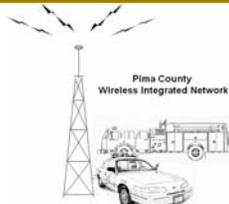


The draft of this record was sent to Captain Paul Wilson on April 3, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

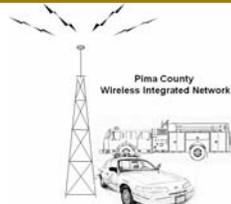
Interviewee Name & Address:  
Captain Paul Wilson  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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County Final.doc



2. Documentation Provided:

- Copy of Santa Cruz County Initiatives and Plans from the Southern Arizona Regional Advisory Council



## 2.4.6 Yuma County

### A. Current Environment

#### 1. System Description

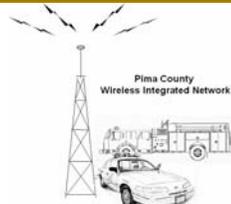
Yuma County is involved in the same type of regional communications project that Pima is starting. Yuma is about two years into the process currently implementing their first phase.

Yuma's goal is to provide interoperable voice and data communications countywide with first priority on populace areas and compatible communications with Phoenix and surrounding counties.

Yuma is in the implementation of project phase 1 building a three-site network. The hardware is a Motorola P25 700/800 MHz trunked (non-simulcast) radio system. The system is software upgradeable to P25 phase 2 (6.25 kHz channel bandwidth) capability. Phase 1 will be operational in November of 2006 with cutover planned for March of 2007. Yuma ran a competitive procurement with Motorola and M/A-COM.

Phase 1 will cover the Yuma area and serve all public safety, local county agencies, and other city public service, as well as Rural Metro fire/ambulance. Later phases will add outlying sites to grow the overall coverage footprint.

Key to Yuma's project is a successful cooperative agreement with Arizona Public Service (APS) (the power utility) for sharing sites, microwave, and to some extent, radio systems. APS has 32 sites and T1 connection points at Mt. Lemmon and Child's Mountain.



Yuma's new radios can communicate in Smartnet mode on APS networks as well as San Diego Regional System, and Maricopa County's system. APS and Maricopa plan migration to P25 technology. APS currently has about 70% statewide coverage (probably mobile density).

Yuma is open to connected infrastructure with Pima County should that capability become an option.

Pima PCWIN will be a larger procurement than Yuma's, and therefore may secure better user pricing. Yuma would like to see Pima's procurement documents structured so that Yuma can take advantage of the better pricing.

The Department of Public Safety plays a key role in state law enforcement. Each regional system needs to provide easy and convenient intercommunication with DPS.

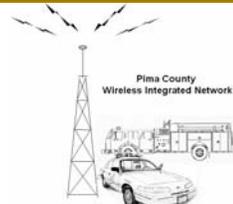
## 2. Interoperability

Pima County Sheriff's office in Ajo interacts on a regular basis with the Sheriff's Department in Yuma County. Yuma Sheriff's Department currently communicates using an 800 MHz SmartNet technology on a network using infrastructure shared with Arizona Public Service.

### B. Desired Interoperability Environment

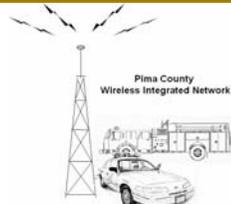
Yuma's previous radios system was an EFJ and is still in use by some of the local public service agencies. Communications will be maintained across systems using an ACU 1000 and dispatch cross patch.

Patch is also the method planned for Federal interoperability. Since federal agencies may operate radio in the public safety bands and not the other way around, the Feds tend to buy the needed County 700/800 MHz radios needed for coordinated operations.



C. Supporting Information

1. Interview Record



CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Yuma County

File Name: Yuma County 030306 Interview Record Final.doc

Date of Interview: March 03, 2006

Location of Interview: PCSD Administration Building

Persons Interviewed: Greg Wilkinson

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Roscoe Mitchell, CTA Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. Greg is a member of the Homeland Security Council. Yuma County is involved in the same type of regional communications project that Pima is starting. Yuma is about 2 years into the process currently implementing their first phase.
2. Yuma's goal is to provide interoperable voice and data communications countywide with first priority on populace areas and compatible communications with Phoenix and surrounding counties.

Present Situation

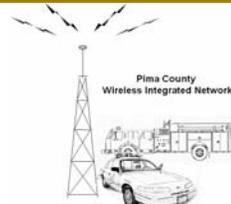
1. Yuma is in the implementation of project phase 1 building a three-site network. The hardware is a Motorola P25 700/800 MHz trunked (non-simulcast) radio system. The system is software upgradeable to P25 phase 2 (6.25 kHz channel bandwidth) capability. Phase 1 will be operational in November of 2006 with cutover planned for March of 2007. Yuma ran a competitive procurement with Motorola and M/A-COM.
2. Phase 1 will cover the Yuma area and serve all public safety, local county agencies, and other city public service, as well as Rural Metro fire/ambulance. Later phases will add outlying sites to grow the overall coverage footprint.

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CTA Communications, Inc.

1

Lynchburg, VA



3. Key to Yuma's project is a successful cooperative agreement with Arizona Public Service (APS) (the power utility) for sharing sites, microwave, and to some extent, radio systems. APS has 32 sites and T1 connection points at Mt. Lemmon and Child's Mountain.
4. Yuma's new radios can communicate in Smartnet mode on APS networks as well as San Diego Regional System, and Maricopa County's system. APS and Maricopa plan migration to P25 technology. APS currently has about 70% statewide coverage (probably mobile density).
5. Yuma's previous radios system was an EFJ and is still in use by some of the local public service agencies. Communications will be maintained across systems using an ACU 1000 and dispatch cross patch.
6. Patch is also the method planned for Federal interoperability. Since federal agencies may operate radio in the public safety bands and not the other way around, the Feds tend to buy the needed County 700/800 MHz radios needed for coordinated operations.

Future Requirements

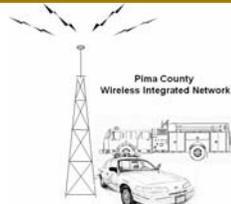
1. Yuma is open to connected infrastructure with Pima County should that capability become an option.
2. Pima PCWIN will be a larger procurement than Yuma's, and therefore may secure better user pricing. Yuma would like to see Pima's procurement documents structured so that Yuma can take advantage of the better pricing.
3. The Department of Public Safety plays a key role in state law enforcement. Each regional system needs to provide easy and convenient intercommunication with DPS.

The draft of this record was sent to Captain Paul Wilson on April 4, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

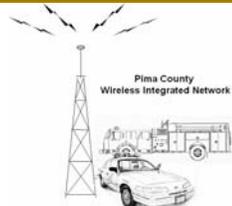
Interviewee Name & Address:  
Captain Paul Wilson, Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\030306 Yuma County Final.doc



2. Documentation Provided

None.



## 2.4.7 Arizona Department of Public Safety

### A. Current Environment

#### 1. System Description

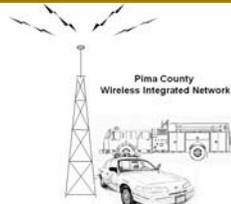
The Arizona Department of Public Safety includes the functions and responsibilities of the Arizona Highway Patrol, the Law Enforcement Division of the state Department of Liquor Licenses and Control, and the Narcotics Division of the state Department of Law.

The Department is a multi-faceted organization dedicated to protecting and providing state-level law enforcement services to the public while developing and maintaining close partnerships with other agencies sharing similar missions.

The Department consists of four divisions; [Highway Patrol](#), [Criminal Investigations](#), [Agency Support](#) and [Criminal Justice Support](#). The Arizona DPS provides an extensive range of vital scientific, technical, operational and regulatory services to Arizona residents and to the state's criminal justice community. The Arizona Department of Public Safety, with state headquarters in Phoenix, has offices located in more than 30 communities within Arizona's 15 counties.

#### 2. Interoperability

TABLE 2.4.7A shows the existing direct interoperability capabilities with other agencies for the Arizona Department of Public Safety. The state operates two conventional channels for statewide interoperability – one in the VHF (150 MHz) and the other in the UHF (450 MHz) band. Recently, they have added the National Mutual Aid channels in the 800 MHz NPSPAC band as a third option.

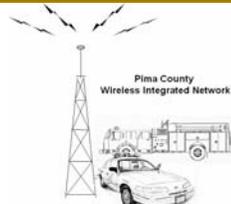


There are 19 sites located around the state for this network; each tower site is equipped with automated cross band repeaters. In this way, calls made in one band are automatically repeated in the other two bands. The vast majority of state and local first responders should have radios compatible with one of the three signals carried on each of these 19 state towers.

The Emergency Management Office owns and maintains mobile response equipment to assist these first responders across the state. There are 4 “Toads”, which are 24-ft. mobile communications vans, and one “Bullfrog”, which is a 40-ft. mobile communications van. These vans are equipped with ACU-1000 patch-panels to accommodate interoperability between disparate frequency bands and proprietary trunking protocols. The vans are also equipped with a collection of VHF (150 MHz), UHF (450 MHz) and 800 MHz radios that can be used on scene. Several talk-groups have been allocated on the Arizona Public Service (APS) 800 MHz trunked radio system for the state to use in connection with emergency services. APS is an electric utility company and has constructed a statewide radio network for their use.

Highway Patrol utilizes the UHF (450 MHz) frequency band for primary operations. This radio system is a conventional mobile radio system. Direct radio interoperability with local jurisdictions, such as Pima County Sheriff (800 MHz system), Tucson Police Department (VHF system – 150 MHz) does not occur since these agencies do not operate on a common frequency band.

The Pima County Sheriff’s Department has the capability to interconnect disparate frequency bands by utilizing the “Toad”. The “Toad” is a mobile communications van operated by Emergency Management. It is equipped with an ACU-1000 for cross-band interoperability between VHF, UHF and 800 MHz radios. The “Toad” can be used for planned events.

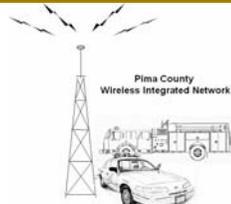


B. Desired Interoperability Environment

The ability for the State Police to have radio communications access with local law enforcement personnel, or other first responders (Fire/Rescue, Emergency Medical, etc.) in Pima County is desirable. Pima County regional radio plan include the Arizona Department of Transportation (ADOT) and the state Department of Corrections.

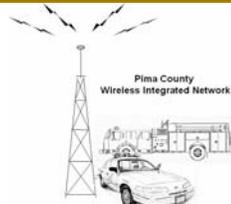
The state operates and the other in the UHF (450 MHz) band. There are plans underway to expand the 19 site statewide interoperability VHF (150 MHz), UHF (450 MHz) networks to approximately 43 sites located primarily on existing Department of Public Safety (DPS) remote communications sites. The goal of this network is to provide mobile coverage along all sections of Interstate highways in Arizona, in all county seats and along the entire extent of the U.S./Mexican border.

TABLE 2.4.7B shows the future direct interoperability capabilities with other agencies for the Arizona Department of Public Safety.



C. Supporting Information

1. Interview Record



CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: - State of Arizona Representatives

File Name: - 022306 AZ State Interview Record Final Interview Record.doc

Date of Interview: - February 23, 2006

Location of Interview: - Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

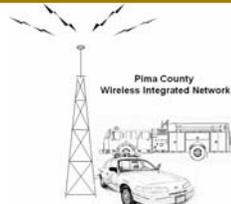
Persons Interviewed: - Sgt. Shannon Bradley – AZ Dept. of Public Safety  
Scott Tillman – Manager of Telecommunications,  
Arizona Department of Public Safety  
Kevin Rogers – Project Manager, Arizona Public  
Safety Communications Commission  
Carl Reitz – Emergency Services Program  
Coordinator  
Curt Knight – Executive Director, Public Safety  
Communications Commission

CTA Interviewers: - Cheryl Giggetts, PMP – President  
Ken Ballard, Ph.D. – Vice President

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. Sgt. Shannon Bradley is a sworn law enforcement officer in the Arizona Highway Patrol, a division of the Department of Public Safety. His duties frequently bring him into Pima County where he has on occasion communicated with the Sheriff's Department, Tucson Police and other local law enforcement personnel.

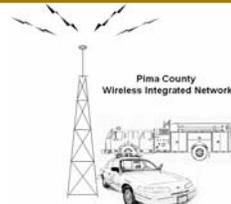


2. Scott Tillman is Manager of Telecommunications in the Arizona Department of Public Safety. The Bureau of Telecommunications is responsible for operating and maintaining the communications infrastructure for 18 state agencies all over Arizona.
3. Carl Reitz is Program Coordinator in the Arizona Division of Emergency Management (ADEM). In this capacity, Mr. Reitz plans for emergency situations that would involve first responders from multiple agencies and jurisdictions and others involved with critical infrastructure. A major consideration in this planning is provisioning and coordinating communications between disparate groups who use different frequency bands and protocols in their radio equipment. ADEM is primarily responsible for supporting the State Emergency Operations Center (SEOC), and maintaining communications with other federal, tribal, state and county emergency management personnel during a major incident.
4. Curt Knight is Executive Director and Kevin Rogers is a Project Manager for the Public Safety Communications Commission. The Governor has appointed 15 board members to the Commission, which acts under the auspices of the Arizona Department of Public Safety. Mr. Knight and Mr. Rogers serve in staff (as opposed to appointed) positions. The objective of the Commission is to study and improve interoperability among and between all first responders in Arizona, including all state agencies as well as local jurisdictions.

Present Situation

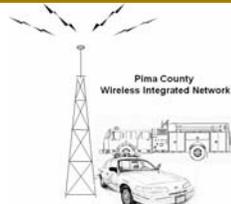
1. Sgt. Bradley said that the AZ Highway Patrol uses UHF (~ 450 MHz) frequencies in a conventional mode for their mobile communications. In his experience, there are fairly infrequent occasions where he has needed to contact or communicate with local law enforcement personnel, or other first responders (Fire/Rescue, Emergency Medical, etc.) in Pima County – e.g., Sheriff’s Department, Tucson Police, Tucson Fire, etc. On those occasions where he did need to contact local jurisdictions, direct over-the-air contacts were not possible since PCSD uses an 800 MHz trunked radio system, and Tucson PD uses a VHF (150 MHz) conventional system.

These frequency bands and protocols are incompatible with the Highway Patrol radios. According to Sgt. Bradley, the procedure used for making these contacts is: first, you call the (state) dispatch on your radio; the state dispatcher then calls the local dispatcher (for example, Pima County Sheriff’s Dept.) on the telephone; the local dispatcher then relays the information to the appropriate persons to respond.



All information, instructions and other communications are then relayed between the officers via the two dispatch locations, the telephone connection and the two radio systems. Direct communications are not possible until the two officers arrive on the scene and can talk without radios. Sgt. Bradley did recall one instance where he made direct calls to deputies in the Pima County Sheriff's Department – this was a planned event where the "Toad" was used for interoperability. (The "Toad" is a 24-ft. communications van operated by Emergency Management. The van is equipped with an ACU-1000 for cross-band interoperability between VHF, UHF and 800 MHz radios.)

2. According to Curt Knight and Kevin Rogers, the Public Safety Communications Commission is currently focused on statewide interoperability for Arizona state agencies as well as local first responders. The state operates two conventional channels for statewide interoperability – one in the VHF (150 MHz) and the other in the UHF (450 MHz) band. Recently, they have added the National Mutual Aid channels in the 800 MHz NPSPAC band as a third option. There are 19 sites located around the state for this network; each tower site is equipped with automated crossband repeaters. In this way, calls made in one band are automatically repeated in the other two bands. The vast majority of state and local first responders should have radios compatible with one of the three signals carried on each of these 19 state towers. There are plans underway to expand the statewide network to approximately 43 sites located primarily on existing Department of Public Safety (DPS) remote communications sites. The goal of this network is to provide mobile coverage along all sections of Interstate highways in Arizona, in all county seats and along the entire extent of the U.S./Mexican border.
3. Curt Knight and Kevin Rogers also described the efforts of the Statewide Interoperable Executive Committee (SIEC) and their long-term plans. A Request for Proposal (RFP) for a consultant should be released in the next few weeks. The scope of work will include the development of a conceptual design or architecture for the Statewide Interoperable Network, plus detailed planning for a pilot program. It is the state's intent to build the pilot system by July of 2008. They are looking for participation by all state agencies in the development of this network.
4. Scott Tillman, Manager of the Telecommunications Bureau, explained how his office was responsible for the infrastructure comprising the state's radio system. Currently, the Telecommunications Bureau provides services 18 state agencies. Primary responsibilities include oversight of the state's microwave network, which includes about 80 fixed sites, and for maintaining mountain-top communications facilities.



The bureau is currently replacing analog microwave equipment with digital equipment and building out the capacity and extent of the state's connectivity network. Mr. Tillman reminded the group of the tri-band repeater operating in the Tucson metro area, known as "Gateway," and serving VHF, UHF and 800 MHz users.

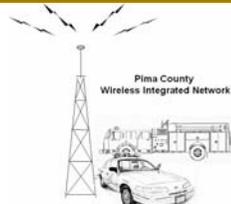
5. Carl Reitz, Emergency Services Program Coordinator, described the role of the Arizona Division of Emergency Management and the assets that are available from his agency. A primary goal of the Emergency Services Program is to educate and coordinate state and local first responders on radio interoperability. The Emergency Management Office owns and maintains mobile response equipment to assist these first responders across the state. There are 4 "Toads", which are 24-ft. mobile communications vans, and one "Bullfrog", which is a 40-ft. mobile communications van. These vans are equipped with ACU-1000 patch-panels to accommodate interoperability between disparate frequency bands and proprietary trunking protocols. The vans are also equipped with a collection of VHF (150 MHz), UHF (450 MHz) and 800 MHz radios that can be used on scene. Several talk-groups have been allocated on the Arizona Public Service (APS) 800 MHz trunked radio system for the state to use in connection with emergency services. APS is an electric utility company and has constructed a statewide radio network for their use.

#### Present Problems

1. Direct calls between the state Highway Patrol and local first responders (Sheriff, Police or Fire/Rescue) cannot be made. Although rarely needed, the current method of relaying messages through two radio systems and two dispatchers linked via commercial telephone lines is cumbersome and time consuming.
2. General interoperability between state agencies, between local first responders, and between state and local agencies is complicated due to multiple, incompatible frequency bands and proprietary protocols utilized by the public safety community.
3. The multi-band statewide interoperability network operated by the Arizona Department of Public Safety does not provide adequate coverage. This has been the impetus for building out the additional radio sites for this network.

#### Future Requirements

1. Interoperability between state law enforcement agencies and Pima County Sheriff's Department, Tucson Police & Fire, and other local first responders located within Pima County is an on-going requirement.



2. If Pima County decides to move the Emergency Operations Center (EOC), state-owned equipment (including base stations) will have to be moved to the new location.

Additional Comments

1. Other state agencies that need to be considered in a Pima County regional radio plan include the Arizona Department of Transportation (ADOT) and the state Department of Corrections.
2. From observing the implementation of the P25 radio systems in the Mesa and Phoenix area, the group noted that governance of a Pima County radio system will be an important item for planning, and may be more difficult than the technical details.
3. If the recommended design coming out of the CTA study includes 700 MHz channels, the allocation of specific frequencies for Pima County may be especially difficult due to the international border and the requirement for coordination between the FCC and the Mexican government. This could delay the project.

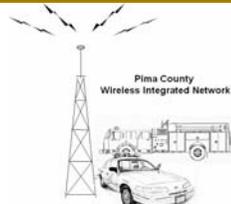
The draft of this record was sent to Mr. Curt Knight on March 29, 2006.

Corrected draft was returned to CTA Communications on April 13, 2006.

Interviewee Name & Address:

Mr. Curt Knight, Executive Director  
Public Safety Communications Commission  
Arizona Department of Public Safety  
Mail Drop 3450  
P.O. Box 6638  
Phoenix, AZ 85005-6638

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2. Documentation Provided

None.

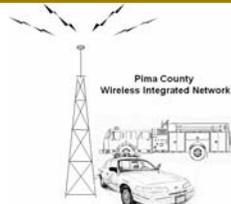


TABLE 2.4.7A Existing Interoperability

Agency Types Arizona Dept. of Public Safety	Fire Agencies	Arizona Dept. of Public Safety	Police and Emergency Services Agencies	Agency Types Arizona Dept. of Public Safety	Federal Agencies
	Ajo/Gibson Vol. FD		Marana PD		Bureau of Alcohol, Tobacco, Firearms & Explosives
	Arivaca Vol. FD		Oro Valley PD		Customs and Border Protection
	Avra Valley Fire District		Pascua Yaqui PD		Drug Enforcement Administration
	Corona de Tucson Fire District		Pima College Dept. of Public Safety		Emergency Man. & Homeland Security
	Drexel Heights Fire District		Pima County OEM & Homeland Security		Federal Bureau of Investigation
	Elephant Head Vol. FD		Pima County Sheriff's Dept.		Immigration and Customs Enforcement
	Golder Ranch Fire District		Pima County Sheriff's Dept. - Ajo		National Park Service
	Green Valley Fire District		Sahuarita PD		Bureau of Land Management
	Helmet Peak Fire District		South Tucson PD		U.S. Fish & Wildlife
	Mt. Lemmon Fire District		Tohono O'odham Tribal Police		U.S. Forest Service
	Northwest Fire District		Tucson Airport Authority PD		U.S. Marshals Service
	Pascua Pueblo FD		Tucson PD		Arizona Dept. of Public Safety
	Picture Rocks Fire District		University of Arizona Police		Arizona Game and Fish
	Rincon Valley Fire District				State
	Rural Metro Fire/Southwest Ambulance				
	South Tucson FD				
	Three Points FD				
	Tohono O' odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				

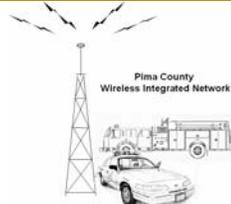
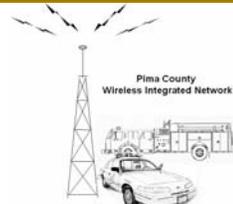


TABLE 2.4.7B Future Interoperability

Agency Types	Arizona Dept. of Public Safety	Fire Agencies	Police and Emergency Services Agencies	Agency Types	Arizona Dept. of Public Safety	Federal Agencies	Agencies
	X	Ajo/Gibson Vol. FD				Bureau of Alcohol, Tobacco, Firearms & Explosives	
	X	Arivaca Vol. FD				Customs and Border Protection	
	X	Avra Valley Fire District				Drug Enforcement Administration	
	X	Corona de Tucson Fire District		X		Emergency Man. & Homeland Security	X
	X	Drexel Heights Fire District		X		Federal Bureau of Investigation	
	X	Elephant Head Vol. FD		X		Immigration and Customs Enforcement	
	X	Golder Ranch Fire District		X		National Park Service	
	X	Green Valley Fire District		X		Bureau of Land Management	
	X	Helmet Peak Fire District		X		U.S. Fish & Wildlife	
	X	Mt. Lemmon Fire District		X		U.S. Forest Service	
	X	Northwest Fire District		X		U.S. Marshals Service	
	X	Pascua Pueblo FD		X		Arizona Dept. of Public Safety	
	X	Picture Rocks Fire District		X		Arizona Game and Fish	
	X	Rincon Valley Fire District		X			
	X	Rural Metro Southwest Ambulance		X			
	X	South Tucson FD		X			
	X	Three Points FD		X			
	X	Tohono O'odham FD		X			
	X	Tucson Airport Authority FD		X			
	X	Tucson FD		X			
		Ajo Ambulance		X			
	X	Why Fire District		X			



## 2.4.8 Arizona Game & Fish

The Arizona Game & Fish Department did not attend the interview that was scheduled for them. There has been no contact with this organization. At present, we have no direct knowledge of their current communications environment, or of their desires for interoperability with Pima County departments and agencies, or any of the cities, towns, or Native American agencies. All requirements will thus be developed from the standpoint of Pima County's need or desire to *talk to* the Arizona Game & Fish Department. It is assumed that Game & Fish will not be users of the PCWIN, and no provisions for them will be made in the plans.

### A. Current Environment

#### 1. System Description

Unknown

#### 2. Interoperability

Unknown

### B. Desired Interoperability Environment

Unknown

### C. Supporting Information

#### 1. Interview Record

None.

#### 2. Documentation Provided

None.

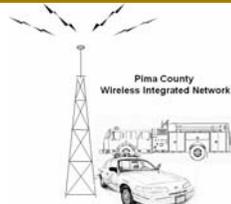
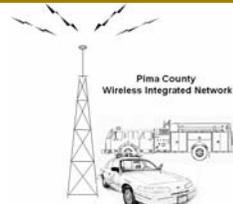


TABLE 2.4.8A Existing Interoperability

Agency Types	Agency Types	Agency Types
Arizona Game and Fish	Arizona Game and Fish	Arizona Game and Fish
Ajo/Gibson Vol. FD	Marana PD	Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD	Oro Valley PD	Customs and Border Protection
Avra Valley Fire District	Pascua Yaqui PD	Drug Enforcement Administration
Corona de Tucson Fire District	Pima College Dept. of Public Safety	Emergency Man. & Homeland Security
Drexel Heights Fire District	Pima County OEM & Homeland Security	Federal Bureau of Investigation
Elephant Head Vol. FD	Pima County Sheriff's Dept.	Immigration and Customs Enforcement
Golder Ranch Fire District	Pima County Sheriff's Dept. - Ajo	National Park Service
Green Valley Fire District	Sahuarita PD	Bureau of Land Management
Helmet Peak Fire District	South Tucson PD	U.S. Fish & Wildlife
Mt. Lemmon Fire District	Tohono O'odham Tribal Police	U.S. Forest Service
Northwest Fire District	Tucson Airport Authority PD	U.S. Marshals Service
Pascua Pueblo FD	Tucson PD	Arizona Dept. of Public Safety
Picture Rocks Fire District	University of Arizona Police	Arizona Game and Fish
Rincon Valley Fire District		
Rural Metro Fire/Southwest Ambulance		
South Tucson FD		
Three Points FD		
Tohono O' odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		





## 2.4.9 Arizona Land Management Forestry Service and Fire Management

### A. Current Environment

#### 1. System Description

The Forestry Division mobilizes and manages firefighters and equipment to and from all parts of Arizona and other states, and coordinates the mutual aid activities between the rural fire departments within the State and cooperating federal agencies. The Division also supports "All Risk" or other non-fire emergency responses such as floods and hazardous materials accidents. The Division is responsible to prevent and suppress wildland fires on 9.3 million acres of State Trust land and 13 million acres of private land located outside incorporated municipalities.

Headquarters is located in Phoenix AZ.:

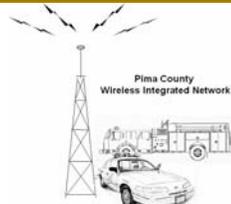
2901 W Pinnacle Peak Rd  
Phoenix, AZ 85027-1002  
602-255-4059

The local office is located in Tucson AZ:

4455 S Park Ave, Ste 100  
Tucson, AZ 85714  
520-628-5480

#### 2. Interoperability

The Forestry Division utilizes an analog VHF conventional radio system and typically will access the Mt. Lemmon repeater site for local coverage requirements in Pima County. The system is connected to the Phoenix Headquarters through microwave links.

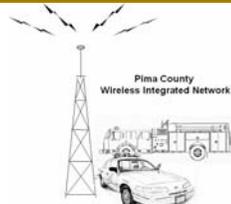


Non-Fixed equipment has the capability to operate in narrowband mode but the equipment currently operates in wideband mode. Operations are typically conducted on simplex (non-repeated) fire ground channels and local agencies operate on the Forester's frequencies during an operation.

B. Desired Interoperability Environment

The Forestry Service and Fire Management Division requires interoperability with local fire districts that support fire operations on state land or land that is private but not located in an incorporated area.

Specific information regarding interoperability communications with public safety agencies in Pima County has not been defined at this time.



C. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Arizona State Land Department/ Forestry Service and Fire Management

Organization Representative: Jon Huish

File Name: 042506 Arizona State Land Department Final Interview Record.doc

Date of Interview: 12:00 PM, April 25, 2006

Location of Interview: Telephone Interview  
1750 East Building, Address

Persons Interviewed: Jon Huish  
(602) 319 – 6129

CTA Interviewers: Harry Rote, CTA Senior Systems Engineer

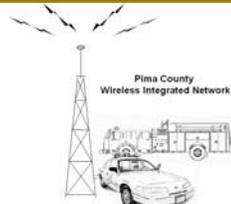
The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. The Forestry Division mobilizes and manages firefighters and equipment to and from all parts of Arizona and other states, and coordinates the mutual aid activities between the rural fire departments within the State and cooperating federal agencies. The Division also supports "All Risk" or other non-fire emergency responses such as floods and hazardous materials accidents. The Division is responsible to prevent and suppress wildland fires on 9.3 million acres of State Trust land and 13 million acres of private land located outside incorporated municipalities.

2. Headquarters is located in Phoenix AZ.:

2901 W Pinnacle Peak Rd  
Phoenix, AZ 85027-1002  
602-255-4059



3. The local office is located in Tucson AZ:

4455 S Park Ave, Ste 100  
Tucson, AZ 85714  
520-628-5480

Present Situation

1. The Forestry Division utilizes an analog VHF conventional radio system and typically will utilize the Mt. Lemmon repeater site for local coverage requirements in Pima County. The system is connected to the Phoenix Headquarters through microwave links.
2. The Forestry Division Non-Fixed equipment is narrowband capable but operates in wideband mode.
3. Operations are typically conducted on simplex (non-repeated) fire ground channels and local agencies operate on the Forester's frequencies during an operation.

Present Problems

1. There have been some improvements made in regards to Pima County coverage "deadspot" but there are still problem areas.

Future Requirements

1. None.

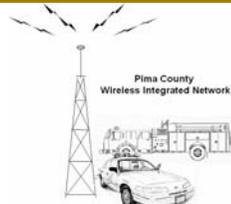
The draft of this record was sent to Jon Huish on April 25, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:

Jon Huish  
Arizona State Land Department/ Forestry Service and Fire Management  
2901 W Pinnacle Peak Rd  
Phoenix, AZ 85027-1002  
602(602) 319 – 6129

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\042506 Arizona State Land Department Final.doc



2. Documentation Provided

None.

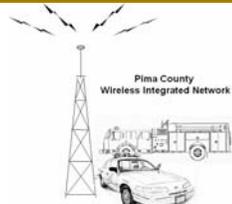


TABLE 2.4.9A Existing Interoperability

Agency Types Bureau of Land Management	Ajo/Gibson Vol. FD	Agency Types Bureau of Land Management	Bureau of Land Management		
	Arivaca Vol. FD				
	Avra Valley Fire District				
	Corona de Tucson Fire District				
	Drexel Heights Fire District			Fire Agencies	
	Elephant Head Vol. FD				
	Golder Ranch Fire District				
	Green Valley Fire District				
	Helmet Peak Fire District				
	Mt. Lemmon Fire District				
	Northwest Fire District				
	Pascua Pueblo FD				
	Picture Rocks Fire District				
	Rincon Valley Fire District				
	Rural Metro Fire/Southwest Ambulance				Fire Agencies
	South Tucson FD				
	Three Points FD				
	Tohono O'odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				
	Marana PD			Police and Emergency Services Agencies	
	Oro Valley PD				
Pascua Yaqui PD					
Pima College Dept. of Public Safety					
Pima County OEM & Homeland Security					
Pima County Sheriff's Dept.					
Pima County Sheriff's Dept. - Ajo					
Sahuarita PD					
South Tucson PD					
Tohono O'odham Tribal Police					
Tucson Airport Authority PD					
Tucson PD					
University of Arizona Police					
Bureau of Alcohol, Tobacco, Firearms & Explosives	Federal Agencies				
Customs and Border Protection					
Drug Enforcement Administration					
Emergency Man. & Homeland Security					
Federal Bureau of Investigation					
Immigration and Customs Enforcement					
National Park Service					
Bureau of Land Management					
U.S. Fish & Wildlife					
U.S. Forest Service					
U.S. Marshals Service					
Arizona Dept. of Public Safety		State			
Arizona Game and Fish					

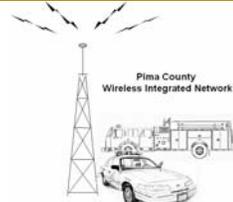
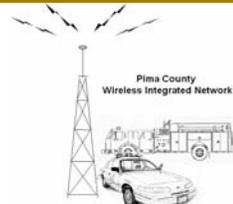


TABLE 2.4.9B Future Interoperability

Bureau of Land Management	Agency Types		Bureau of Land Management	Agency Types		Bureau of Land Management	Agency Types		
	Fire Agencies			Police and Emergency Services Agencies			Federal Agencies		
	Ajo/Gibson Vol. FD			Marana PD			Bureau of Alcohol, Tobacco, Firearms & Explosives		
	Arivaca Vol. FD			Oro Valley PD			Customs and Border Protection		
	Avra Valley Fire District			Pascua Yaqui PD			Drug Enforcement Administration		
	Corona de Tucson Fire District			Pima College Dept. of Public Safety			Emergency Man. & Homeland Security		
	Drexel Heights Fire District			Pima County OEM & Homeland Security			Federal Bureau of Investigation		
	Elephant Head Vol. FD			Pima County Sheriff's Dept.			Immigration and Customs Enforcement		
	Golder Ranch Fire District			Pima County Sheriff's Dept. - Ajo			National Park Service		
	Green Valley Fire District			Sahuarita PD			Bureau of Land Management		
	Helmet Peak Fire District			South Tucson PD			U.S. Fish & Wildlife		
	Mt. Lemmon Fire District			Tohono O'odham Tribal Police			U.S. Forest Service		
	Northwest Fire District			Tucson Airport Authority			U.S. Marshals Service		
	Pascua Pueblo FD			Tucson PD			Arizona Dept. of Public Safety		
	Picture Rocks Fire District			University of Arizona Police			Arizona Game and Fish		
	Rincon Valley Fire District								
	Rural Metro Southwest Ambulance								
	South Tucson FD								
	Three Points FD								
	Tohono O'odham FD								
Tucson Airport Authority FD									
Tucson FD									
Ajo Ambulance									
Why Fire District									



## 2.4.10 Bureau of Alcohol, Tobacco, Firearms & Explosives, DEA, FBI, U.S. Marshal

### A. Current Environment

#### 1. System Description

U.S. Marshals office has no infrastructure in the region. They use radios that are borrowed or purchased for use on the local system. They also use the FBI system on an infrequent basis when encryption is needed.

Federal agencies tend to use local law enforcement radio systems for several reasons. It is easier for the Federal agencies to obtain agreements on public safety channels than for the local law to gain access to federal channels. The local law has the needed dispatch support and they have more radio equipment.

All groups have agreements in place allowing them to work on local VHF, UHF, and 800 systems.

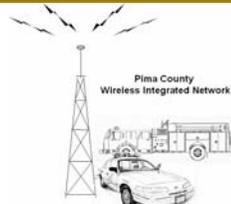
Nextel Blackberries are universally used by the Federal agencies for paging, cellular, and various data access functions.

DEA currently has consistent UHF radio communications across the US. UHF Communications can be deployed anywhere in the US. The issued radios have the correct channels and simply work.

#### 2. Interoperability

TABLE 2.4.10A shows the existing direct interoperability capabilities with other agencies for the ATF.

Exchanging radios is the most practical way to operate because of several frequency bands in use.



FBI and DEA have security and access/priority concerns if they are integrated into a joint use system.

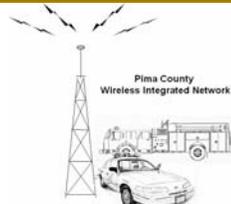
Same radio band communications with local law for ease of interoperability.

B. Desired Interoperability Environment

These Federal agencies operate in a five county area which include Pima, Cochise, Santa Cruz, Pinal, and Graham Counties. U.S. Marshals conduct prisoner transport, fugitive apprehension, and courthouse security. DEA sets up and operates local task forces and FBI conducts joint operations.

Federal agencies often rely on local dispatch for reliable 24 hour lifeline support. FBI cannot communicate with Pima County dispatch or Tohona O'odham Tribal dispatch because of the lack of 800 MHz radios. All Federal agencies desire some means to maintain communication with local law dispatch for officer safety.

TABLE 2.4.10B shows the future direct interoperability capabilities with other agencies for the ATF.



C. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Investigations Bureau

File Name: 022706 Pima County Investigations Bureau Interview Record Final.doc

Date of Interview: February 27, 2006

Location of Interview: PCSD Administration Building

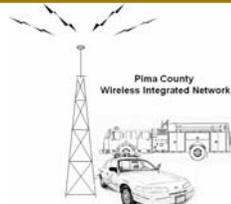
Persons Interviewed: John Mawhinney, PCSD, Detective  
Phil Santucci, PCSD, Detective  
Mike Duffey, PCSD, Detective  
Jason Ayers, PCSD, Detective  
Ken Coultas, PCSD, Detective  
Paul Leonard, PCSD, Detective  
Paul Wilson, Captain Sheriff Department

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Gary Mountcastle, CTA Senior Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. The organizations included in this interview are those responsible for general investigations and animal crime.
2. General investigations include economic crimes; fraud, arson, auto theft, burglary, crimes against children; child abuse, sex crimes, narcotics, fugitive investigations, and the strike team.
3. The Counter Narcotics Alliance includes 90 people from all Law Enforcement (except Pima airport and community college). The group is governed by an executive board and is commanded per-incident on the basis of crime type.



Present Situation

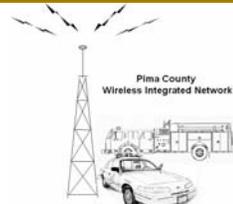
1. The operation has a need for all types of radio communications including administrative, tactical team communications. Based on many comments regarding portable radios, the group's preferred device is the portable radio.

Present Problems

1. Problems with Sheriff's radio system today:
  - Long PTT delay (having to wait to speak)
  - No calling unit ID provided on the portables
2. The media can too easily scan (eavesdrop) on law enforcement communications.
3. Radio operation including talk group structure, and correct site selection is entirely too complicated today. This is a safety issue today. Training needs are unnecessarily high. New Task Force members that do not routinely use the radio, find radio operation difficult.
4. Coverage issues are a problem for task forces using car-to car radio when following a vehicle out of the County. Direct radio distances are sometimes exceeded.

Future Requirements

1. Need encrypted car-to-car communications.
2. Animal investigations needs direct communications with the health department, and the Department of Live Stock. Today, communications are over the phone sometimes needing to set up with help from dispatch.
3. "Busy Group" alert: The radios should provide some means of alerting users that the talk group is "busy" handling a critical situation and is restricted to critical traffic only such as during a 10-35 situation. Radios need some sort of visual and/or audible "busy group" indication as an alert for all users on the talk group.
4. Need a clearly marked emergency button with some mechanism for minimizing accidental button presses and the resulting false emergencies.



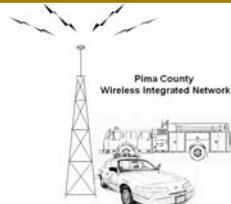
5. Simpler radio operation not requiring tower site selection. Need more than 2 banks of 12 talk groups. Liked the simple ABC switch on older portables.
6. Improvements to portable battery operation. Improved battery life. Need a vehicular charger similar to that used on Ericsson equipment.
7. Narcotics need a radio line that is compatible with the broadest selection of covert radio accessories possible.
8. Hands-free mic accessories, lighted keypad, durable radio holsters, accessory “quick disconnect”, and “remote radio disable” for lost or stolen radios.
9. Mobile data needs:
  - Access to wants/warrants via ACIC and NCIC information
  - Small (PDA-type) handheld devices, (yet compliant with conservative Arizona DPS information security requirements)
10. Automatic vehicle location (AVL) is needed for personnel safety reasons. Tracking down to the portable/person level is acceptable.

The draft of this record was sent to Captain Paul Wilson on April 3, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:  
Captain Paul Wilson, PCSO  
Sheriff  
Pima County Sheriff's Department  
1750 E. Benson Highway  
Tucson, AZ 85714

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2. Documentation Provided

None.

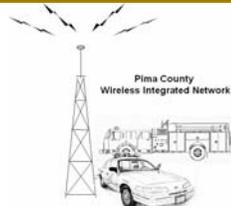


TABLE 2.4.10A Existing Interoperability

Agency Types	Fire Agencies	Police and Emergency Services Agencies
Bureau of Alcohol, Tobacco, Firearms & Explosives	Ajo/Gibson Vol. FD	Marana PD
Drug Enforcement Administration	Arivaca Vol. FD	Oro Valley PD
Federal Bureau of Investigation	Avra Valley Fire District	Pascua Yaqui PD
U.S. Marshals Service	Corona de Tucson Fire District	Pima College Dept. of Public Safety
	Drexel Heights Fire District	Pima County OEM & Homeland Security
	Elephant Head Vol. FD	Pima County Sheriff's Dept.
	Golder Ranch Fire District	Pima County Sheriff's Dept. - Ajo
	Green Valley Fire District	Sahuarita PD
	Helmet Peak Fire District	South Tucson PD
	Mt. Lemmon Fire District	Tohono O'odham Tribal Police
	Northwest Fire District	Tucson Airport Authority PD
	Pascua Pueblo FD	Tucson PD
	Picture Rocks Fire District	University of Arizona Police
	Rincon Valley Fire District	
	Rural Metro Fire/Southwest Ambulance	
	South Tucson FD	
	Three Points FD	
	Tohono O' odham FD	
	Tucson Airport Authority FD	
	Tucson FD	
	Ajo Ambulance	
	Why Fire District	

Agency Types	Police and Emergency Services Agencies
Bureau of Alcohol, Tobacco, Firearms & Explosives	Marana PD
Drug Enforcement Administration	Oro Valley PD
Federal Bureau of Investigation	Pascua Yaqui PD
U.S. Marshals Service	Pima College Dept. of Public Safety
	Pima County OEM & Homeland Security
	Pima County Sheriff's Dept.
	Pima County Sheriff's Dept. - Ajo
	Sahuarita PD
	South Tucson PD
	Tohono O'odham Tribal Police
	Tucson Airport Authority PD
	Tucson PD
	University of Arizona Police

Agency Types	Federal Agencies	State
Bureau of Alcohol, Tobacco, Firearms & Explosives	Bureau of Alcohol, Tobacco, Firearms & Explosives	Arizona Dept. of Public Safety
Drug Enforcement Administration	Customs and Border Protection	Arizona Game and Fish
Federal Bureau of Investigation	Drug Enforcement Administration	
U.S. Marshals Service	Emergency Man. & Homeland Security	
	Federal Bureau of Investigation	
	Immigration and Customs Enforcement	
	National Park Service	
	Bureau of Land Management	
	U.S. Fish & Wildlife	
	U.S. Forest Service	
	U.S. Marshals Service	

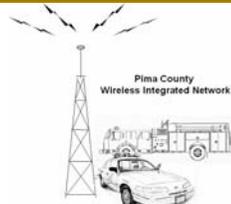
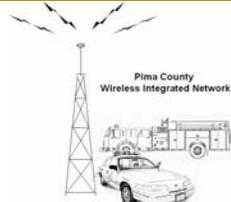


TABLE 2.4.10B Future Interoperability

Agency Types	Fire Agencies
Bureau of Alcohol, Tobacco, Firearms & Explosives	Ajo/Gibson Vol. FD
Drug Enforcement Administration	Arivaca Vol. FD
Federal Bureau of Investigation	Avra Valley Fire District
U.S. Marshals Service	Corona de Tucson Fire District
	Drexel Heights Fire District
	Elephant Head Vol. FD
	Golder Ranch Fire District
	Green Valley Fire District
	Helmet Peak Fire District
	Mt. Lemmon Fire District
	Northwest Fire District
	Pascua Pueblo FD
	Picture Rocks Fire District
	Rincon Valley Fire District
	Rural Metro Southwest Ambulance
	South Tucson FD
	Three Points FD
	Tohono O'odham FD
	Tucson Airport Authority FD
	Tucson FD
	Ajo Ambulance
	Why Fire District

Agency Types	Police and Emergency Services Agencies	
Bureau of Alcohol, Tobacco, Firearms & Explosives	Marana PD	
Drug Enforcement Administration	Oro Valley PD	
Federal Bureau of Investigation	Pascua Yaqui PD	X
U.S. Marshals Service	Pima College Dept. of Public Safety	
	Pima County OEM & Homeland Security	
	Pima County Sheriff's Dept.	X
	Pima County Sheriff's Dept. - Ajo	
	Sahuarita PD	
	South Tucson PD	
	Tohono O'odham Tribal Police	X
	Tucson Airport Authority	
	Tucson PD	X
	University of Arizona Police	

Agency Types	Federal Agencies	Agencies
Bureau of Alcohol, Tobacco, Firearms & Explosives	Bureau of Alcohol, Tobacco, Firearms & Explosives	
Drug Enforcement Administration	Customs and Border Protection	
Federal Bureau of Investigation	Drug Enforcement Administration	
U.S. Marshals Service	Emergency Man. & Homeland Security	
	Federal Bureau of Investigation	
	Immigration and Customs Enforcement	
	National Park Service	
	Bureau of Land Management	
	U.S. Fish & Wildlife	
	U.S. Forest Service	
	U.S. Marshals Service	
	Arizona Dept. of Public Safety	
	Arizona Game and Fish	



## 2.4.11 Customs and Border Protection

### A. Current Environment

#### 1. System Description

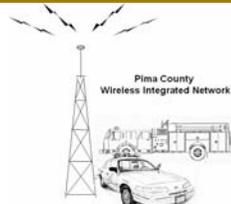
Currently, the U.S. Border Patrol employs over 11,000 agents, and is responsible for patrolling 19,000 miles of land and sea borders. The Border Patrol personnel are deployed primarily at the US – Mexico border, where they are assigned to control drug trafficking and illegal immigration. There Border Patrol has eight (8) stations located for Tucson area:

Eastern: Noco, Wilcox, Douglas  
Center: Tucson (Swan Rd), Sanoita, Nogales,  
Western: Sahuarita, Yuma, Douglas, Ajo,

The PCWIN Border Patrol participants represent the Tucson sector and the Arizona area and are involved in the IWIN radio project being planned in the southern Arizona area. The area of interest for this project includes the Tucson sector or the Mexican boarder from New Mexico to Yuma.

The Border Patrol Com Center is located at 2430 Swan Lake Road, Tucson Arizona. The Border Patrol has a VHF conventional voter radio network on place. The plan is to upgrade the network to a Digital Project 25 narrowband (12.5 kHz) radio system and add tower sites and channels to improve coverage and performance by the end of 2007.

The network will provide about 5 channel capacity throughout the network's defined corridor. Plans are for the radio network to support both voice and mobile data applications.



Key radio sites for the Border Patrol are located at Mt. Lemmon and Keystone Mtn.

The BP are interested in participating in the PCWIN project and want to identify resource collocation opportunities and improve radio communications interoperability with local, state and other federal agencies.

## 2. Interoperability

The Border Patrol operates in the federal VHF band. Arrangements are made during specific operations to equip officers with radios to facilitate communications with local and other state and federal agencies.

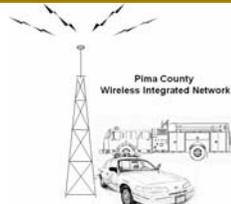
Under normal circumstances Field Patrol cannot communicate on their radios directly with local law enforcement unless special provisions are made.

TABLE 2.4.11A shows the existing direct interoperability capabilities with other agencies for the Border Patrol.

### B. Desired Interoperability Environment

Border Patrol would like to improve radio interoperability. This includes making use of the Sheriff's ACU 1000 so that a patch can be created and Border Patrol Officers and Deputies can communicate in the field.

The Border Patrol would like to have radio, and telephony connectivity for their regional offices in Tucson (Swan Rd), Noco, Wilcox, Douglas, Sanoita, Nogales, Sahuarita, Yuma, Douglas, and Ajo. To facilitate shared radio system resources, database accessibility and wireless data transfers. TABLE 2.4.11B shows the future direct interoperability capabilities with other agencies for the Border Patrol.



C. Supporting Information

1. Interview Record

**CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD**

**Organization/Agency:** - **Border Patrol**

**File Name:** - **Pima County Border Patrol Interview Record Final.doc**

**Date of Interview:** - **March 01, 2006**

**Location of Interview:** - **Pima County Sheriff Department**  
1750 E. Benson Highway  
Tucson, Arizona 85714

**Persons Interviewed:** -

Name	Dept./ Title	Phone	Email
Eric Davies	DHSCBP Field Support	928 341 6619	<a href="mailto:Eric.davies@dhs.gov">Eric.davies@dhs.gov</a>
William R. Tuttle,	US Border Patrol Comm. Department	520 670 – 6871	<a href="mailto:William.tuttle@dhs.gov">William.tuttle@dhs.gov</a>
Clyde J. Benzenhoefer	Us Border Patrol Assistant Chief	520 670 6871	<a href="mailto:Clyde.Benzenhoefer@dhs.gov">Clyde.Benzenhoefer@dhs.gov</a>

**CTA Interviewer:** - **Harry Rote and Roscoe Mitchell**

The following points were conveyed to CTA during this interview:

**Organization and Responsibilities**

1. The United States Border Patrol (USBP), a Federal police force, is the mobile uniformed law enforcement arm of U.S. Customs and Border Protection (CBP), a bureau of the Department of Homeland Security. The Border Patrol was originally founded on May 28, 1924 as an agency of the United States Department of Labor. Prior to 2003, the Border Patrol was part of the Immigration and Naturalization Service (INS), an agency within the U.S. Department of Justice. The priority mission of the Patrol, as a result of the 9/11 attacks and its merging into DHS, is to prevent terrorists and terrorist weapons from entering the United States of America. However, the Border Patrol's traditional mission remains as the deterrence, detection and apprehension of illegal immigrants and individuals involved in the illegal drug trade who enter the United States illegally.



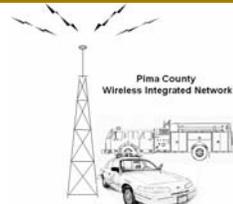
Currently, the U.S. Border Patrol employs over 11,000 agents, and is responsible for patrolling 19,000 miles of land and sea borders. The Border Patrol personnel are deployed primarily at the U.S.-Mexico border, where they are assigned to control drug trafficking and illegal immigration.

**Present Situation**

1. Participants in this interview represent the Tucson sector and the Arizona area and are involved in the IWIN radio project being planned in the southern Arizona area.
2. Currently IWIN vendors are performing site-surveys to determine tower-site feasibility. The BP are interested in participating in the PCWIN project and want to identify collocation opportunities and improve radio communications interoperability with local, state and other federal agencies.
3. The Tucson sector is responsible for the Mexican boarder from New Mexico to Yuma.
4. The Border Patrol has installed a VHF conventional voter radio network. The plan is to upgrade the network to a Digital Project 25 narrowband (12.5 kHz) radio system and add tower sites and channels to improve coverage and performance. Year 2007 is the planned completion date.
5. There Border Patrol has eight (8) stations located for Tucson area:  
Eastern: Noco, Wilcox, Douglas  
Center: Tucson (Swan Rd), Sanoita, Nogales,  
Western: Sahuarita, Yuma, Douglas, Ajo,
6. The Border Patrol Com Center is located at 2430 Swan Lake Road, Tucson Arizona.
7. Key radio sites for the Border Patrol are located at Mt. Lemmon and Keystone.
8. The network will provide about 5 channel capacity throughout the network's defined corridor. Plans are for the radio network to support both voice and mobile data applications.

**Present Problems**

1. Field Patrol cannot communicate directly with local law enforcement unless special provisions are made.



2. The Sheriff's radio system experiences long-delays between transmitting and receiving.

**Future Requirements**

1. Improve radio interoperability. Make use of the Sheriff's ACU so that a patch can be created and Border Patrol Officers and Deputies can communicate in the field. Border Patrol would like interoperability with county.

**Additional Comments**

1. None.

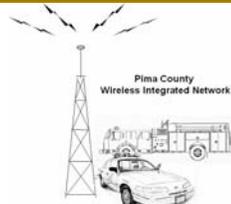
The draft of this record was sent to Eric Davies on March 27, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:

Name	Dept./ Title	Phone	Email
Eric Davies	DHSCBP Field Support	928 341 6619	<a href="mailto:Eric.davies@dhs.gov">Eric.davies@dhs.gov</a>

M:\FILES\20099 Pima County, AZ\20099A - Business Architecture Planning\interview\Final\030106 Border Patrol Final.doc



CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: Customs, Border Patrol,  
Immigration, Transportation Safety Administration  
U.S. Secret Service

File Name: Pima County 022306 Federal 2 Interview Record Final.doc

Date of Interview: February 23, 2006

Location of Interview: PCSD Administration Building

Persons Interviewed: Guy De Luca, Assist. Federal Security Director L.E.

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Ken Ballard, CTA Project Manager  
Gary Mountcastle, CTA Senior Communications Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

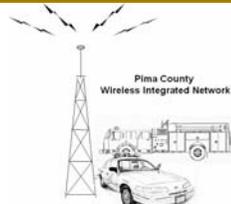
1. TSA is responsible for aviation security at three airports in Pima County: Tucson Airport, Sierra Vista Airport, and Yuma Airport.
2. TSA will be expanding service in 2006 to multi-mode transportation security including highway transportation and passenger/cargo rail service.
3. TSA line of authority at an airport is loosely described as:
  - If the plane doors are closed, TSA is in charge
  - If the plane doors are open, the FBI is in charge
  - Local law enforcement is in charge outside of the airport
4. Local TSA consists of baggage screeners, administrative personnel, and one law enforcement person, the Assistant Director. TSA screeners can detain suspects but can not make arrests. There are no first responders under Mr. De Luca. He functions primarily as a liaison to other law enforcement entities.

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CTA Communications, Inc.

1

Lynchburg, VA



Present Situation

1. Local TSA has 6 Motorola portable radios, unknown band, used for direct communications among TSA staff at the airport. Because of a lack of programming or channels, radios cannot access any other agencies or local law enforcement.
2. TSA alerts airport police using a body-mounted call button or landline telephone. Response is generally within one minute.
3. PCWIN may want to consider participation of DOD personal at David Monthan Air Force Base and Air National Guard as responders in a security threat.
4. Radios are limited to use at the airport and are used mainly for convenience of operations. Nextel phones are also used extensively.

Present Problems

1. TSA has no radio equipment capable of directly contacting the local or federal law enforcement.
2. The radios lack coverage at some locations within the airport boundaries. Cannot talk from building to building in some cases.

Future Requirements

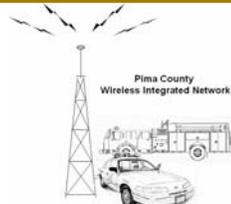
1. Two portable radios on PCWIN would be useful for TSA to provide direct contact with city or county dispatch.
2. Mr. DeLuca needs to be able to communicate with the airport security screening manager in a different building and intercommunicate with local law enforcement agencies in the area.

The draft of this record was sent to Captain Paul Wilson on March 27, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Captain Paul Wilson  
1750 E. Benson Highway  
Tucson, Arizona 85714

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2. Documentation Provided

None.

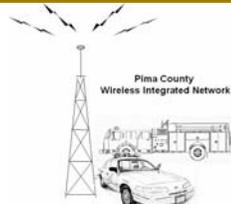


TABLE 2.4.11A Existing Interoperability

Agency Types	Agency Types	Agency Types
Customs and Border Protection	Customs and Border Protection	Customs and Border Protection
Ajo/Gibson Vol. FD	Marana PD	Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD	Oro Valley PD	Customs and Border Protection
Avra Valley Fire District	Pascua Yaqui PD	Drug Enforcement Administration
Corona de Tucson Fire District	Pima College Dept. of Public Safety	Emergency Man. & Homeland Security
Drexel Heights Fire District	Pima County OEM & Homeland Security	Federal Bureau of Investigation
Elephant Head Vol. FD	Pima County Sheriff's Dept.	Immigration and Customs Enforcement
Golder Ranch Fire District	Pima County Sheriff's Dept. - Ajo	National Park Service
Green Valley Fire District	Sahuarita PD	Bureau of Land Management
Helmet Peak Fire District	South Tucson PD	U.S. Fish & Wildlife
Mt. Lemmon Fire District	Tohono O'odham Tribal Police	U.S. Forest Service
Northwest Fire District	Tucson Airport Authority PD	U.S. Marshals Service
Pascua Pueblo FD	Tucson PD	Arizona Dept. of Public Safety
Picture Rocks Fire District	University of Arizona Police	Arizona Game and Fish
Rincon Valley Fire District		
Rural Metro Fire/Southwest Ambulance		
South Tucson FD		
Three Points FD		
Tohono O' odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		

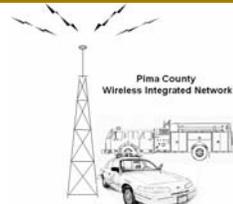
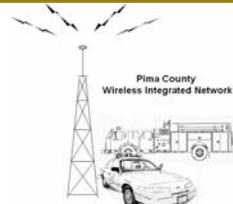


TABLE 2.4.11B Future Interoperability

Agency Types	Customs and Border Protection	Fire Agencies	Police and Emergency Services Agencies	Agency Types	Customs and Border Protection	Federal Agencies	Agencies
		Ajo/Gibson Vol. FD				Bureau of Alcohol, Tobacco, Firearms & Explosives	
		Arivaca Vol. FD				Customs and Border Protection	
		Avra Valley Fire District				Drug Enforcement Administration	
		Corona de Tucson Fire District	X	Marana PD	X	Emergency Man. & Homeland Security	
		Drexel Heights Fire District	X	Oro Valley PD		Federal Bureau of Investigation	
		Elephant Head Vol. FD	X	Pascua Yaqui PD		Immigration and Customs Enforcement	
		Golder Ranch Fire District	X	Pima College Dept. of Public Safety		National Park Service	
		Green Valley Fire District		Pima County OEM & Homeland Security		Bureau of Land Management	
		Helmet Peak Fire District	X	Pima County Sheriff's Dept.		U.S. Fish & Wildlife	
		Mt. Lemmon Fire District	X	Pima County Sheriff's Dept. - Ajo		U.S. Forest Service	
		Northwest Fire District		Sahuarita PD		U.S. Marshals Service	
		Pascua Pueblo FD	X	South Tucson PD		Arizona Dept. of Public Safety	
		Picture Rocks Fire District	X	Tohono O'odham Tribal Police		Arizona Game and Fish	
		Rincon Valley Fire District	X	Tucson Airport Authority			
		Rural Metro Southwest Ambulance	X	Tucson PD			
		South Tucson FD	X	University of Arizona Police			
		Three Points FD					
		Tohono O'odham FD					
		Tucson Airport Authority FD					
		Tucson FD					
		Ajo Ambulance					
		Why Fire District					



#### 2.4.12 Immigration and Customs Enforcement

The Immigration and Customs Department did not attend the interview that was scheduled for them. There has been no contact with this organization. At present, we have no direct knowledge of their current communications environment, or of their desires for interoperability with Pima County departments and agencies, or any of the cities, towns, or Native American agencies. All requirements will thus be developed from the standpoint of Pima County's need or desire to *talk to* Immigration and Customs Enforcement.

A. Current Environment

1. System Description

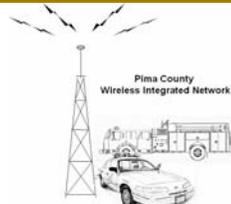
Unknown

2. Interoperability

Unknown

B. Desired Interoperability Environment

Unknown



## C. Supporting Information

### 1. Interview Record

#### CTA COMMUNICATIONS FINAL INTERVIEW RECORD

Organization/Agency: Customs, Border Patrol,  
Immigration, Transportation Safety Administration  
U.S. Secret Service

File Name: Pima County 022306 Federal 2 Interview Record Final.doc

Date of Interview: February 23, 2006

Location of Interview: PCSD Administration Building

Persons Interviewed: Guy De Luca, Assist. Federal Security Director L.E.

CTA Interviewers: David Anderson, CTA Senior Systems Engineer  
Ken Ballard, CTA Project Manager  
Gary Mountcastle, CTA Senior Communications Specialist

The following points were conveyed to CTA during this interview:

#### Organization and Responsibilities

1. TSA is responsible for aviation security at three airports in Pima County: Tucson Airport, Sierra Vista Airport, and Yuma Airport.
2. TSA will be expanding service in 2006 to multi-mode transportation security including highway transportation and passenger/cargo rail service.
3. TSA line of authority at an airport is loosely described as:
  - If the plane doors are closed, TSA is in charge
  - If the plane doors are open, the FBI is in charge
  - Local law enforcement is in charge outside of the airport
4. Local TSA consists of baggage screeners, administrative personnel, and one law enforcement person, the Assistant Director. TSA screeners can detain suspects but can not make arrests. There are no first responders under Mr. De Luca. He functions primarily as a liaison to other law enforcement entities.

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CTA Communications, Inc.

1

Lynchburg, VA



Present Situation

1. Local TSA has 6 Motorola portable radios, unknown band, used for direct communications among TSA staff at the airport. Because of a lack of programming or channels, radios cannot access any other agencies or local law enforcement.
2. TSA alerts airport police using a body-mounted call button or landline telephone. Response is generally within one minute.
3. PCWIN may want to consider participation of DOD personal at David Monthan Air Force Base and Air National Guard as responders in a security threat.
4. Radios are limited to use at the airport and are used mainly for convenience of operations. Nextel phones are also used extensively.

Present Problems

1. TSA has no radio equipment capable of directly contacting the local or federal law enforcement.
2. The radios lack coverage at some locations within the airport boundaries. Cannot talk from building to building in some cases.

Future Requirements

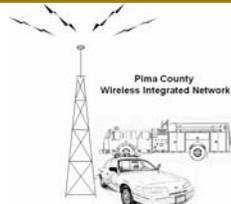
1. Two portable radios on PCWIN would be useful for TSA to provide direct contact with city or county dispatch.
2. Mr. DeLuca needs to be able to communicate with the airport security screening manager in a different building and intercommunicate with local law enforcement agencies in the area.

The draft of this record was sent to Captain Paul Wilson on March 27, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Captain Paul Wilson  
1750 E. Benson Highway  
Tucson, Arizona 85714

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2. Documentation Provided

None.

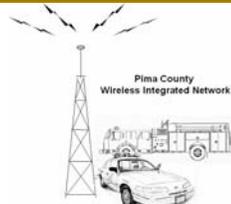


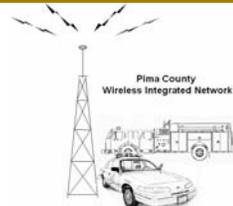
TABLE 2.4.12A Existing Interoperability

Agency Types Immigration and Customs Enforcement	Agency Types Immigration and Customs Enforcement	Agency Types Immigration and Customs Enforcement
Ajo/Gibson Vol. FD		Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD		Customs and Border Protection
Avra Valley Fire District		Drug Enforcement Administration
Corona de Tucson Fire District		Emergency Man. & Homeland Security
Drexel Heights Fire District	Marana PD	Federal Bureau of Investigation
Elephant Head Vol. FD	Oro Valley PD	Immigration and Customs Enforcement
Golder Ranch Fire District	Pascua Yaqui PD	National Park Service
Green Valley Fire District	Pima College Dept. of Public Safety	Bureau of Land Management
Helmet Peak Fire District	Pima County OEM & Homeland Security	U.S. Fish & Wildlife
Mt. Lemmon Fire District	Pima County Sheriff's Dept.	U.S. Forest Service
Northwest Fire District	Pima County Sheriff's Dept. - Ajo	U.S. Marshals Service
Pascua Pueblo FD	Sahuarita PD	Arizona Dept. of Public Safety
Picture Rocks Fire District	South Tucson PD	Arizona Game and Fish
Rincon Valley Fire District	Tohono O'odham Tribal Police	
Rural Metro Fire/Southwest Ambulance	Tucson Airport Authority PD	
South Tucson FD	Tucson PD	
Three Points FD	University of Arizona Police	
Tohono O' odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		



TABLE 2.4.12B Future Interoperability

Agency Types	Agency Types	Agency Types
Immigration and Customs Enforcement	Immigration and Customs Enforcement	Immigration and Customs Enforcement
Ajo/Gibson Vol. FD	Marana PD	Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD	Oro Valley PD	Customs and Border Protection
Avra Valley Fire District	Pascua Yaqui PD	Drug Enforcement Administration
Corona de Tucson Fire District	Pima College Dept. of Public Safety	Emergency Man. & Homeland Security
Drexel Heights Fire District	Pima County OEM & Homeland Security	Federal Bureau of Investigation
Elephant Head Vol. FD	Pima County Sheriff's Dept.	Immigration and Customs Enforcement
Golder Ranch Fire District	Pima County Sheriff's Dept. - Ajo	National Park Service
Green Valley Fire District	Sahuarita PD	Bureau of Land Management
Helmet Peak Fire District	South Tucson PD	U.S. Fish & Wildlife
Mt. Lemmon Fire District	Tohono O'odham Tribal Police	U.S. Forest Service
Northwest Fire District	Tucson Airport Authority	U.S. Marshals Service
Pascua Pueblo FD	Tucson PD	Arizona Dept. of Public Safety
Picture Rocks Fire District	University of Arizona Police	Arizona Game and Fish
Rincon Valley Fire District		
Rural Metro Southwest Ambulance		
South Tucson FD		
Three Points FD		
Tohono O'odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		



### 2.4.13 National Park Service

#### A. Current Environment

##### 1. System Description

The U.S. Park Service mission is to protect and provide access to the Nation's natural Forests and Parks.

The Park Service shares a 14 channel VHF plan with the Park US Forest Service (Coronado National Forest) and Land Management agencies. Park Service Law Enforcement has 10 portables and 6 mobiles; fire has 10 portables and 6 mobiles. Park Service Radios are 12.5 kHz narrowband digital P25 radios.

Park Service Visitor Centers include: East Saguaro, West Saguaro, Rincon, and Tucson (dispatch).

##### 2. Interoperability

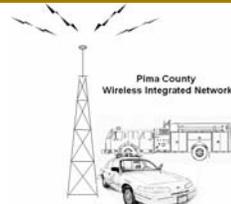
TABLE 2.4.13A shows the existing direct interoperability capabilities with other agencies for the National Park Service.

Dispatch centers for the Park Service and Forest Service are connected with fiber optics to the Sheriff PSAP and the Tucson Police PSAP.

#### B. Desired Interoperability Environment

The Park Service would like to improve radio interoperability with US Forest Service Service, and local police and fire agencies.

TABLE 2.4.13B shows the future direct interoperability requirements with other agencies for the National Park Service.



C. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: U.S. Forest Service  
U.S. National Park Service

Organization Representative: Fred Coe USFS Radio Tech

File Name: 022306 Forest and Park and Arizona State Land  
Department Final.doc

Date of Interview: 1:30 PM, February 23, 2006

Location of Interview: Sheriff Administration Building  
1750 East Building, Address

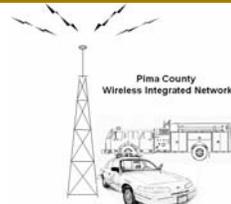
Persons Interviewed: Members of the following:  
U.S. Forest Service Coronado National Forest  
U.S Forest Service Santa Catalina Law Enforcement  
Nogales Law Enforcement  
U.S Forest Service Aviation  
U.S Forest Service Radio  
U.S. National Park Service

CTA Interviewers: Harry Rote, CTA Senior Systems Engineer  
Roscoe Mitchell Technical Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. The Forest Service is an agency of the U.S. Department of Agriculture. The Forest Service manages public lands in the national state park, which encompass 193 million acres. Pima County representation includes Coronado National Forest, BLM Safford, Tucson, San Carlos Tribal, Saguaro National Park, Chiricahua National Monument, Fort Bowie Historic Site, and the Buenos Aires National Wildlife Refuge.



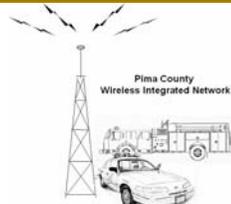
2. The U.S. Park Service mission is to protect and provide access to the Nation's natural Forests and Parks.

Present Situation

1. Coronado National Forest, Park Service, and Land Management agencies utilize a 14 channel standard frequency plan. The channels include:

Number	Receive	RX Tone	Transmit	Tx Tone/ Rptr	Apha
1	169.600		169.600	100.0/ west pk	Forenet
2	169.600		170.525	103.5/ mule	Forrpt
3	168.150		168.150	107.2/ atascosa	Firenet
4	168.150		172.275	110.9/ bigalow	Firerpt
5	154.280		154.280	114.8/ Hopkins	Az state
6	166.350		166.350	118.8/ heliograph	Nps sag
7	170.025		170.025	123.0/ red	Crew
8	162.400			127.3/ mt lemmon	Weather
9	168.050		168.050	131.8/ monte vista	Nife t1
10	168.200		168.200		Nife t2
11	168.600		168.600		Nife t3
12	168.350		168.350		Common
13	171.425		171.425		Air/ grnd
14	168.625		168.625		Air guard

2. The Forest Service - Catalina District has 30 VHF portables and 30 VHF mobiles; Nogales District has 4 VHF mobiles. The Forest Service radios operate analog 12.5 kHz. Park Service Law Enforcement has 10 portables and 6 mobiles; fire has 10 portables and 6 mobiles. Park Service Radios are 12.5 kHz narrowband digital P25 radios.
3. Forest Service has 4 district offices – Palisades, Federal Building, Santa Catalina, and South Tucson. The offices are equipped with base stations. The agency is dispatched from Tucson, Saguaro National Park.
4. Park Service Visitor Centers include: East Saguaro, West Saguaro, Rincon, and Tucson (dispatch).



5. Dispatch centers for Forest Service and Park Service are connected with fiber optics to the County/ City PSAP.

Present Problems

1. The Forestry Department is having radio interference problems from Mt. Lemmon and Mt. Bigelow from the HDTV antenna. They are also having interference problems from Mexico.
2. The channels are consistently jammed by drug smugglers. This is the major problem.

Future Requirements

1. Video applications are at fixed MTN. locations to monitor weather conditions.
2. Portables – 5 % growth, Mobiles – 10 % growth.
3. Radio users would benefit from a radio protocol training program.

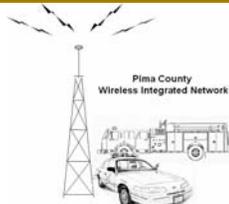
The draft of this record was sent to Fred Coe on March 23, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:

Group Contact: Fred Coe, USFS Radio Tech  
Phone: 520 670 6410  
Email: fcoeefs.fed.us

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## 2. Radio Usage Survey

Pima County, Arizona  
Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
February 7, 2006

**CTA COMMUNICATIONS  
RADIO USAGE  
INFORMATION SURVEY**

Pima County has engaged the services of CTA Communications to evaluate radio usage as part of the PCWIN Project. Please assist us in understanding your current situation and future needs. Please print legibly and attach a business card if you have one. Thank you for your help.

---

**Organization/Agency Name:**  CORONADO NATIONAL FOREST

**Contact Name:**  FRED COE      **Position:**  Electronic Tech

**Phone:**  520-670-6410      **Email:**  FCOE@fs.fed.us

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Please supply the following information about your present two-way radio usage. This is needed in order to project demands into the next 15 years, so that we may be able to provide sufficient fixed-end infrastructure to support your future needs.

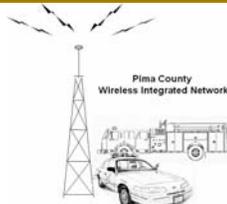
**I: RADIO UTILIZATION CURRENT SITUATION**

a. Quantify the number of Non-Fixed radio equipment that is in your organization's inventory in the table listed below (column B). Non-Fixed Radio equipment includes radios that are either hand-held (portables), mounted in vehicles (mobiles), or desk-tops (Control Stations). Paging Units are included. These units can be digital, analog, or radio-pagers. Please list in the table below the quantities of radios in your operations. Please note their frequency band.

b. Shifts are listed in the table below (Columns C – F). Please quantify the number of employees that might be on duty and operate radios at a given time. You may use the space listed below to describe or clarify the number of employees on-duty and whether they are working in the field, in office, a dispatch center or PSAP.

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	A	B	C	D	E	F
Radio Units	Inventory	Shift 1	Shift 2	Shift 3	Shift 4	Shift 4
Mobiles VHF	200					
Portables VHF	300					
Control Stations	~20					
Paging units	N/A					
Other Devices	N/A					

Please clarify quantity distribution if you have radios operating in different frequency bands for each category in Column A. For example 20 portables total, 10 portables operate in 800 MHz, 10 portables operate in UHF.

**Clarifications:**

- AVIATION BAND RADIOS NOT INCLUDED
- FIRE LOOKOUTS NOT INCLUDED
- 
- 
- 
- 
- 



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c. Check the type of vehicles that require radios and provide a quantity if possible.

Vehicles	Quantity	Requires an installed mobile in the vehicle (yes/ no)
Brush Trucks		
Water Tender		
Pumper/ Engine		
Ladder Truck		
Ambulance		
Patrol Vehicles		
Jail Transport		
Special Ops		
Vehicular Repeaters *		
Disposal Collector		
Maintenance Truck		
Utility Trucks		
Highway Maintenance		
Vans		
Buses		
Cars		
Other (Please Describe)		

\* A Vehicular Repeater vehicle is a vehicle that contains a mobile repeater system.

Clarifications:

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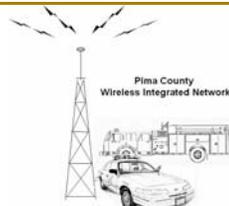
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Wireless Integrated Network (PCWIN)

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February 7, 2006

d. List the number of Control Stations (desk-top radios) and their locations if possible.

Address	Quantity	Utilization (What type of Operations)

Clarifications:

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 February 7, 2006

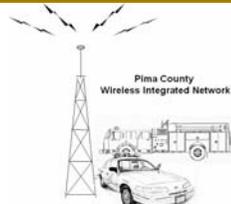
e. Please list the talk-group or channel assignments for your radios.

Primary Talk groups or channel name	Other Talkgroups or channel name	Repeater or Simplex **	Surrounding city or county	Federal	Tribal
1 Forest NET		S VHF		CNF	
2 FOR. ROT		R VHF		CNF	
3 FIRE NET		S VHF		CNF	
4 FIRE ROT		R VHF		CNF	
5 AZ STATE		S VHF	STATE MOUNTAIN		
6 NPS SAC		S VHF		SAGUA	
7 CREW		S VHF		CNF	
8 WX		RWR ONLY		NOAA WX	
9 NIFC T-1		S VHF		NIFC TAC-1	
10 NIFC T-2		S VHF		NIFC TAC-2	
11 NIFC T-3		S VHF		NIFC TAC-3	
12 Common		S VHF		NTIA Common	
13 AIR/GND		S VHF		USFS	
14 GUARD		S VHF		USFS AIR GUARD	

\* Designate the frequency band if known in the appropriate box.  
 \*\* A repeater channel is a channel that utilizes a tower; a simplex channel communicates radio to radio without the benefit of a tower repeater.

**Clarifications:**

RADIOS ARE BETWEEN 210 CH AND 400 CH CAPABILITY  
 LISTED CHANNELS ARE THE STANDARD GROUP 1  
 FOR CNF. NOTE: CH6 IS A LOCAL OPTION.  
 LAW ENFORCEMENT RADIOS ARE PROGRAMMED DIFFERENTLY.



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**II: RADIO PROBLEMS OR CONCERNS**

You may list any problems and concerns you have with the present two-way communications operations. These might include equipment reliability, radio coverage, radio interference, dispatcher responsiveness, radio procedures, or any other concerns which you might have. The table below is provided to give you the opportunity to rate problems that you are experiencing with the system or operations. You may rate strengths by describing the feature and assigning a low value. Definitions of the values are provided below.

List Problem	0	1	2	3	4	5
RADIO COVERAGE			✓			
IX - INTERMOD		✓				
IX - MEXICO				✓		
IX - JAMMING (SMUGGLERS)			✓			
RADIO PROCEDURES			✓			
SYSTEM ARCHITECTURE			✓			

- 0 : No problem identified.
  - 1 : Identified problem, currently not of concern. May become a concern in the future.
  - 2 : Occasionally a problem, affects some operations but is generally worked around.
  - 3 : Regularly a problem, operations are routinely affected to the extent there is a loss of operational efficiency.
  - 4 : Frequently a problem, frequently affects operations, compromises the ability of the user to fulfill his mission.
  - 5 : Critical concern, usually affects operations, potential compromise to safety of user or of citizen.
- N/A: Not applicable or not answered.



Pima County, Arizona  
 Wireless Integrated Network (PCWIN)

Radio Usage Information Survey  
 February 7, 2006

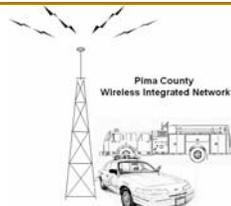
**Clarifications:**

[A series of horizontal lines for handwritten clarifications, with a grey vertical bar on the left side.]

**III: RADIO UTILIZATION FUTURE**

Please estimate the number of future Non-Fixed radios that your agency/ department will require to fulfill its mission. These numbers should reflect the net increase only not total quantities. A percentage can be applied if preferred. These increases should not reflect replacement radios for radios that have been damaged or have surpassed their life-cycle.

Radio Units	5 year Increase	10 year Increase	15 year Increase	20 year Increase
Mobiles	- 10%			
Portables	- 5%			
Control Stations				
Paging units	N/A			
Other Devices	N/A			



Pima County, Arizona  
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February 7, 2006

**Clarifications:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Thank you for your assistance.

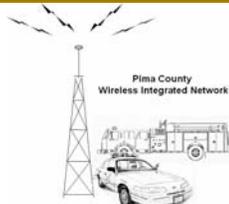
*Please hand this survey in during your interview or return to:*

CTA Communications, Inc.  
P.O. Box 4579  
Lynchburg, VA 24502-0579

Fax: (434) 239-9221  
Phone: (434) 239-9200  
[PCWIN@ctacommunications.com](mailto:PCWIN@ctacommunications.com)

If returning via email, please also send to Captain Paul Wilson: [Paul.Wilson@pimasheriff.net](mailto:Paul.Wilson@pimasheriff.net)

Document1



3. Documentation Provided

None.

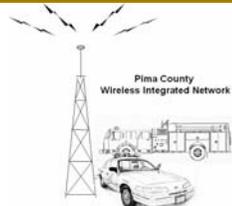


TABLE 2.4.13A Existing Interoperability

Agency Types National Park Service	Ajo/Gibson Vol. FD	Fire Agencies	Agency Types National Park Service	Marana PD	Police and Emergency Services Agencies	Agency Types National Park Service	Bureau of Alcohol, Tobacco, Firearms & Explosives	Federal Agencies
	Avra Valley Fire District			Pascua Yaqui PD			Drug Enforcement Administration	
	Corona de Tucson Fire District			Pima College Dept. of Public Safety			Emergency Man. & Homeland Security	
	Drexel Heights Fire District			Pima County OEM & Homeland Security			Federal Bureau of Investigation	
	Elephant Head Vol. FD			Pima County Sheriff's Dept.			Immigration and Customs Enforcement	
	Golder Ranch Fire District			Pima County Sheriff's Dept. - Ajo			National Park Service	
	Green Valley Fire District			Sahuarita PD			Bureau of Land Management	
	Helmet Peak Fire District			South Tucson PD			U.S. Fish & Wildlife	
	Mt. Lemmon Fire District			Tohono O'odham Tribal Police			U.S. Forest Service	
	Northwest Fire District			Tucson Airport Authority PD			U.S. Marshals Service	
	Pascua Pueblo FD			Tucson PD			Arizona Dept. of Public Safety	State
	Picture Rocks Fire District			University of Arizona Police			Arizona Game and Fish	
	Rincon Valley Fire District							
	Rural Metro Fire/Southwest Ambulance	Fire Agencies						
	South Tucson FD							
	Three Points FD							
	Tohono O'odham FD							
	Tucson Airport Authority FD							
	Tucson FD							
	Ajo Ambulance							
	Why Fire District							

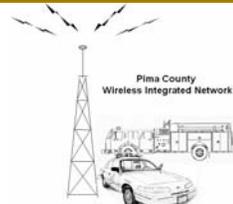
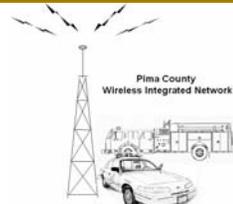


TABLE 2.4.13B Future Interoperability

Agency Types	Agency Types	Agency Types
National Park Service	National Park Service	National Park Service
Ajo/Gibson Vol. FD	Marana PD	Bureau of Alcohol, Tobacco, Firearms & Explosives
Arivaca Vol. FD	Oro Valley PD	Customs and Border Protection
Avra Valley Fire District	Pascua Yaqui PD	Drug Enforcement Administration
Corona de Tucson Fire District	Pima College Dept. of Public Safety	Emergency Man. & Homeland Security
Drexel Heights Fire District	Pima County OEM & Homeland Security	Federal Bureau of Investigation
Elephant Head Vol. FD	Pima County Sheriff's Dept.	Immigration and Customs Enforcement
Golder Ranch Fire District	Pima County Sheriff's Dept. - Ajo	National Park Service
Green Valley Fire District	Sahuarita PD	Bureau of Land Management
Helmet Peak Fire District	South Tucson PD	U.S. Fish & Wildlife
Mt. Lemmon Fire District	Tohono O'odham Tribal Police	U.S. Forest Service
Northwest Fire District	Tucson Airport Authority	U.S. Marshals Service
Pascua Pueblo FD	Tucson PD	Arizona Dept. of Public Safety
Picture Rocks Fire District	University of Arizona Police	Arizona Game and Fish
Rincon Valley Fire District		
Rural Metro Southwest Ambulance		
South Tucson FD		
Three Points FD		
Tohono O'odham FD		
Tucson Airport Authority FD		
Tucson FD		
Ajo Ambulance		
Why Fire District		



#### 2.4.14 U.S. Forest Service

##### A. Current Environment

##### 1. System Description

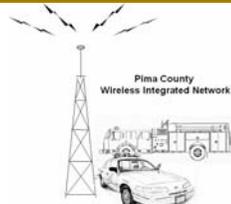
The Forest Service is an agency of the U.S. Department of Agriculture. The Forest Service manages public lands in the national state park, which encompass 193 million acres. Pima County representation includes Coronado National Forest, BLM Safford, Tucson, San Carlos Tribal, Saguaro National Park, Chiricahua National Monument, Fort Bowie Historic Site, and the Buenos Aires National Wildlife Refuge.

Forest Service has 4 district offices – Palisades, Federal Building, Santa Catalina, and South Tucson. The offices are equipped with base stations. The agency is dispatched from Tucson, Saguaro National Park.

The Forest Service (Catalina District) has 30 VHF portables and 30 VHF mobiles; The Nogales District has 4 VHF mobiles. The Forest Service radios operate in analog and 12.5 kHz. Bandwidth.

The US Forest Service (Coronado National Forest) shares a 14 channel VHF plan with the Park Service, and Land Management agencies.

The Forestry Department is having radio interference problems from Mt. Lemmon and Mt. Bigelow from the HDTV antenna. They are also having interference problems from Mexico. The channels are consistently jammed by drug smugglers. This is the major problem.



2. Interoperability

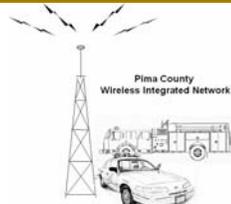
TABLE 2.4.16A shows the existing direct interoperability capabilities with other agencies for the U.S. Forest Service.

Dispatch centers for Forest Service and Park Service are connected with fiber optics to the County/ City PSAP.

B. Desired Interoperability Environment

The US Forest Service would like to improve radio interoperability with Park Service, and local police and fire agencies.

TABLE 2.4.14B shows the future direct interoperability requirements with other agencies for the National Park Service.



C. Supporting Information

1. Interview Record

CTA COMMUNICATIONS  
FINAL INTERVIEW RECORD

Organization/Agency: U.S. Forest Service  
U.S. National Park Service

Organization Representative: Fred Coe USFS Radio Tech

File Name: 022306 Forest and Park and Arizona State Land  
Department Final.doc

Date of Interview: 1:30 PM, February 23, 2006

Location of Interview: Sheriff Administration Building  
1750 East Building, Address

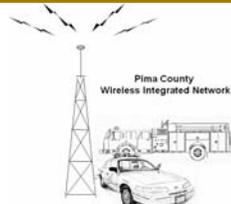
Persons Interviewed: Members of the following:  
U.S. Forest Service Coronado National Forest  
U.S Forest Service Santa Catalina Law Enforcement  
Nogales Law Enforcement  
U.S Forest Service Aviation  
U.S Forest Service Radio  
U.S. National Park Service

CTA Interviewers: Harry Rote, CTA Senior Systems Engineer  
Roscoe Mitchell Technical Specialist

The following points were conveyed to CTA during this interview:

Organization and Responsibilities

1. The Forest Service is an agency of the U.S. Department of Agriculture. The Forest Service manages public lands in the national state park, which encompass 193 million acres. Pima County representation includes Coronado National Forest, BLM Safford, Tucson, San Carlos Tribal, Saguaro National Park, Chiricahua National Monument, Fort Bowie Historic Site, and the Buenos Aires National Wildlife Refuge.



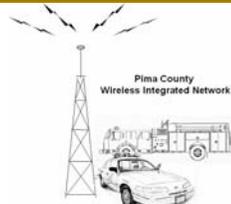
2. The U.S. Park Service mission is to protect and provide access to the Nation's natural Forests and Parks.

Present Situation

1. Coronado National Forest, Park Service, and Land Management agencies utilize a 14 channel standard frequency plan. The channels include:

Number	Receive	RX Tone	Transmit	Tx Tone/ Rptr	Apha
1	169.600		169.600	100.0/ west pk	Forenet
2	169.600		170.525	103.5/ mule	Forrpt
3	168.150		168.150	107.2/ atascosa	Firenet
4	168.150		172.275	110.9/ bigalow	Firerpt
5	154.280		154.280	114.8/ Hopkins	Az state
6	166.350		166.350	118.8/ heliograph	Nps sag
7	170.025		170.025	123.0/ red	Crew
8	162.400			127.3/ mt lemmon	Weather
9	168.050		168.050	131.8/ monte vista	Nife t1
10	168.200		168.200		Nife t2
11	168.600		168.600		Nife t3
12	168.350		168.350		Common
13	171.425		171.425		Air/ grnd
14	168.625		168.625		Air guard

2. The Forest Service - Catalina District has 30 VHF portables and 30 VHF mobiles; Nogales District has 4 VHF mobiles. The Forest Service radios operate analog 12.5 kHz. Park Service Law Enforcement has 10 portables and 6 mobiles; fire has 10 portables and 6 mobiles. Park Service Radios are 12.5 kHz narrowband digital P25 radios.
3. Forest Service has 4 district offices – Palisades, Federal Building, Santa Catalina, and South Tucson. The offices are equipped with base stations. The agency is dispatched from Tucson, Saguaro National Park.
4. Park Service Visitor Centers include: East Saguaro, West Saguaro, Rincon, and Tucson (dispatch).



5. Dispatch centers for Forest Service and Park Service are connected with fiber optics to the County/ City PSAP.

Present Problems

1. The Forestry Department is having radio interference problems from Mt. Lemmon and Mt. Bigelow from the HDTV antenna. They are also having interference problems from Mexico.
2. The channels are consistently jammed by drug smugglers. This is the major problem.

Future Requirements

1. Video applications are at fixed MTN. locations to monitor weather conditions.
2. Portables – 5 % growth, Mobiles – 10 % growth.
3. Radio users would benefit from a radio protocol training program.

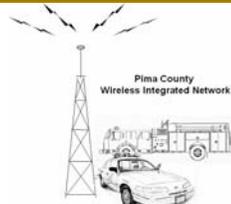
The draft of this record was sent to Fred Coe on March 23, 2006.

Corrected draft was returned to CTA Communications on \_\_\_\_\_.

Interviewee Name & Address:

Group Contact: Fred Coe, USFS Radio Tech  
Phone: 520 670 6410  
Email: fcoeefs.fed.us

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2. Documentation Provided

None.

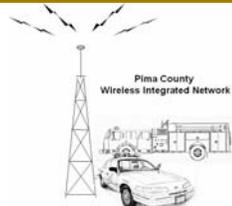


TABLE 2.4.14A Existing Interoperability

Agency Types U.S. Forest Service	Ajo/Gibson Vol. FD	Agency Types U.S. Forest Service	Agency Types U.S. Forest Service		
	Arivaca Vol. FD				
	Avra Valley Fire District				
	Corona de Tucson Fire District				
	Drexel Heights Fire District			Police and Emergency Services Agencies	
	Elephant Head Vol. FD				
	Golder Ranch Fire District				
	Green Valley Fire District				
	Helmet Peak Fire District				
	Mt. Lemmon Fire District				
	Northwest Fire District				
	Pascua Pueblo FD				
	Picture Rocks Fire District				
	Rincon Valley Fire District				
	Rural Metro Fire/Southwest Ambulance				
	South Tucson FD				
	Three Points FD				
	Tohono O' odham FD				
	Tucson Airport Authority FD				
	Tucson FD				
	Ajo Ambulance				
	Why Fire District				
	Bureau of Alcohol, Tobacco, Firearms & Explosives				Federal Agencies
	Customs and Border Protection				
	Drug Enforcement Administration				
	Emergency Man. & Homeland Security				
	Federal Bureau of Investigation				
Immigration and Customs Enforcement					
National Park Service					
Bureau of Land Management					
U.S. Fish & Wildlife					
U.S. Forest Service					
U.S. Marshals Service					
Arizona Dept. of Public Safety	State				
Arizona Game and Fish					



