TELECOMMUNICATIONS DEPARTMENT

2010 Annual Report
Paul Kindell, Director

Mission: Telecommunications is responsible for the design, installation, and maintenance of the Warren County 911 Center, communications systems, and data systems utilized by Public Safety agencies in Warren County. The department is also responsible for providing telephone service to government offices and their affiliates. Additionally, Telecommunications supports the Mobile Data Systems and CAD "Computer Aided Dispatch" systems housed in the Telecommunications Network Operations Center (NOC) and wide area data network along with auxiliary subsystems comprised of video, alarm, paging, telemetry, point-to-point microwave, buried cable, fiber optic networks, routers, switches and more.

Telecom continues to evaluate old ways of doing things to eliminate waste and reduce costs.

Number of Full-Time Employees in 2010: 19

Budget:

Employee Costs:	$1,281,067.88
Operating Costs:	$1,587,229.44
Capital Costs:	$ 567,931.37
Total Costs:	$3,436,228.69
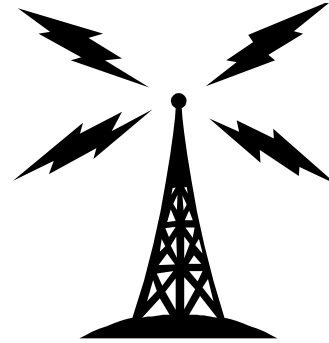
INTRODUCTION

- Warren County Telecommunications is located in the lower level of 500 Justice Drive.

- The department is administrated by a Director and staff members comprising 5 divisions - Administrative, Telephone, Radio, Data Systems, and CAD/RMS.

ADMINISTRATIVE DIVISION

- The Administrative division coordinates and prepares all communications, correspondence, purchase orders, transfers, payroll, and resolutions with the Commissioner's Office, OMB and the Auditor's Office.

- Admin tracks all expenditures, receipts, and billing to the departments and agencies for services provided.

CAD SYSTEMS DIVISION

Prepared by Paul Bernard, CAD/RMS Manager
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The CAD/RMS department came to the Telecommunications Division in August of 2008. The department provides user and configuration support to the following systems:

- Computer Aided Dispatch (CAD)
- Fire Records Management System (FRMS)
- Law Records Management (LRMS)

- Decision Support System (DSS)
- Mobile Data Computer (MDC)
- Open Query (OQ)

In addition, CAD/RMS also coordinates with vendors, troubleshoots system problems, gathers information, and maintains user support groups. The department also handles all of the county mapping for the CAD system, and training of the public safety agencies.

CAD/RMS Manager – Responsible for the configuration and user support of the CAD and records management systems. Interfaces with vendors and passes along information to the public safety agencies. Provides monthly reports and attends monthly Law and Fire meetings.

GIS Mapping – Creates and updates county-wide maps for the CAD system. The map consists of graphical representations of streets, parcels, common locations, political subdivisions, jurisdictional boundaries (fire, police, EMS response areas), aerial photography, selected premise information, hydrant locations, and support information (electric, telephone, zip codes, topographical, rail, and water data). Also responsible for records requests such as a copy of the 9-1-1 call or printouts of a Call for Service form the CAD system.

Training Specialist – Responsible for documenting and creating training materials for the systems and applications supported by the Telecommunications Department. The trainer supports and provides training to Warren County Agencies.

2010 Statistics
- 25,240 entries into the CAD database (additions, deletions, or changes).
- 428 records requests (Records/Incidents).
- Mapping Updates – 90 MSAG Updates, 311 Common Places, and 594 Zones for In County map changes/updates
- The CAD Systems division processed approximately 189 help tickets.
- All divisions answered an email trouble reporting system known as "DPR" or Dispatch Problem Report. Telecom answers DPRs for all technical issues in the Communications Center, agency gateway problems, and Mobile Data Terminal problems in the field.
- Telecom responded to approximately 678 DPR's.

2010 Highlights
- Major CAD version upgrade - took most of our time and energy and replaced out-of-support hardware including many system improvements and new features. This upgrade required several months of testing, training and support.

- Documentation/Training – Provided documentation and training to many of the agencies in the county - Mason FD, Springboro PD, WCSO, WCSO Jail, Deerfield Twp FD, Clearcreek Twp PD, Salem-Morrow FD, Corrections officers, Harlan Twp FD, Juvenile officers, other county agencies (non-public safety).
- System Upgrades – FRMS, LRMS, GGM/MGU, UDT
- CAD Changes – Carlisle FD configuration changes, joint response changes with Mason and Deerfield Twp FD, configuration of Hamilton Twp. 2nd alarm assignments, response changes for Mason FD, and designed CAD DSS reports for WCSO.
- Monthly meetings with Fire and Law (C.A.R.T., Fire Chief, LCWG, FCWG).

- Miscellaneous – created Radio training documentation, completed commissioner reports for the Telecommunication division, monthly newsletter, monthly CAD and telephone reports.
- 3 map uploads
- In May, Telecom held a Public Safety Exposition, requiring months of planning.
- Produced an electronic pdf map book for public safety agencies in/around Warren County.
- Designed plotter maps for EMA exercise & fire agencies.
- Designed pin maps for police and fire agencies.
- Maintained PageGate & Emergin paging databases.
- Maintained the 9-1-1 Master Street Address Guide.
- Monitored status (operational) of 911 and telephone computer daily.
- Monthly reports designed/developed in CAD/DSS.
- Monthly reports prepared for 911, CAD, and phone system.
- Programmed backup fire desk radio and prepared documentation.
- Programmed startup files for 911 backup laptops.
- Checked 911 backup laptops monthly.

In 2010, the CAD Systems division was involved in the following projects or events:

January
- 19, 20, 21 - Station 21 MDC / Radio Training

February
- 4 – Turtlecreek Twp Road Dept Radio Training

March
- 10 – WCSO New Deputy Radio Training
- 12 – C.A.R.T. DSS Training
- 30 – M.A.R.C.S. Training at Station 42
- 31 – Hamilton Twp FD MDC Training

April
- 6 – Nixle Presentation for Wayne Twp Trustees
- 8 – Hamilton Twp FD MDC Training
- 15 – PCAD QTune Review

May
- 11/13 – Non-Stop Hardware Staging (On Site)
- 17-21 – Non-Stop Software Staging (Remote)
- 20 – Warren County Exposition (Kings Island)
- 21 – Lower Level Flood (1800)
- 24/June 4 – Recover flood damaged equipment
- 24/28 – Motorola PCAD ATP Testing (Remote)

June
- 7/8 – PCAD Overview Training (Motorola On-Site)
- 9/July 16 – WCCC Dispatcher PCAD Training
- 15 – Kettering PD On-Site Visit
- 17 – FRMS Update w/ C15 / Wayne Twp Nixle Trng
- 21 – Court Tour of Comm Center and Telecom
- 22 – Trained Dispatches on the 9-1-1 Phase II re-bidding process

July
- 1 – WCSO meeting to discuss CAD DSS reports
- 8 – Help Massie Fire with EMS Exports
- 8 – UDT Upgrade
- 8 – Hamilton Twp PD pCAD new version training
- 12 – Lindner Ctr & Massie Twp FD Radio Training
- 13 – UDT Upgrade
- 15 – Springboro New pCAD version training
- 15 – Motorola CAD Product Rvw (Motorola on-site)
- 16 – Test the Centracom interface with Motorola
- 22 – Produced Emergency Button Training Video for dispatchers and field units
- 26 – Met w/ C11 & Mason FD about Cad Run Cards
- 28 – Met with Motorola to plan test Mobile staging environment

August
- 2/6 – Painted the hallways and offices
- 6 – Assisted with the arrangements for Chief Richardson's Services
- 10 – Attended the Nextel re-banding meeting
- 10/20 – Assisted with tearing down and moving office furniture so carpet could be laid
- 26 – Clinton County on-site visit
- 27 – Met with WCSO ref DSS Reports
- 31 – Adult Probation MDC Training

September
- 10 – Paint Day 2 – Painted kitchen
- 27/30 – LRMS Upgrade (Motorola on-site)

October
- 2 – Attended Salem-Morrow FD Open House at new Station-71
- 4/8 – pCAD 7.0.0.3 and Non-stop live cut
- 19 – NetMeeting with Motorola to discuss fire units disappearing and options
- 21 – WCSO New Deputies Radio Training
- 22 – Amanda Bonahoom's Last Day

November
- 16 – ODNR Radio Training
- 16 – Attended the Verizon Wireless 4G Event
- 26 – Franklin Twp FD FRMS Training

December
- 4, 11, 18 – Made adjustments to Cad Run Cards for fire departments' covered areas

Yearly
- Monthly 9-1-1, Inter-Tel & CAD reports

DATA SYSTEMS DIVISION

Prepared by
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The below information was derived from Key Performance Indicator reports, One on One Report and calendar journaling.

Metrics
10,400 hours (40 hour work periods for 5 employees)
Metrics for DST (Data Systems Team) are collected in four categories:
1. Meetings – Internal, External *(380.5 hours team time)*
2. Projects – Projects as designated by the Division Manager *(1,289.5 hours team time)*.
3. Administration – Phone calls not related to tickets, Voice Mail processing, Journaling, Staff Management, Payroll, OMB related *(1,172.75 hours team time)*.
4. Break Fix – Was working and is broken. This includes call outs, Dispatch Problem Reports, Research, etc.

Ticket History for DST Support Activities
Dispatch Problem Reports are not counted in these totals.
2002 & 2003 have no processed tickets because there was no DST and no ticket system, respectively.
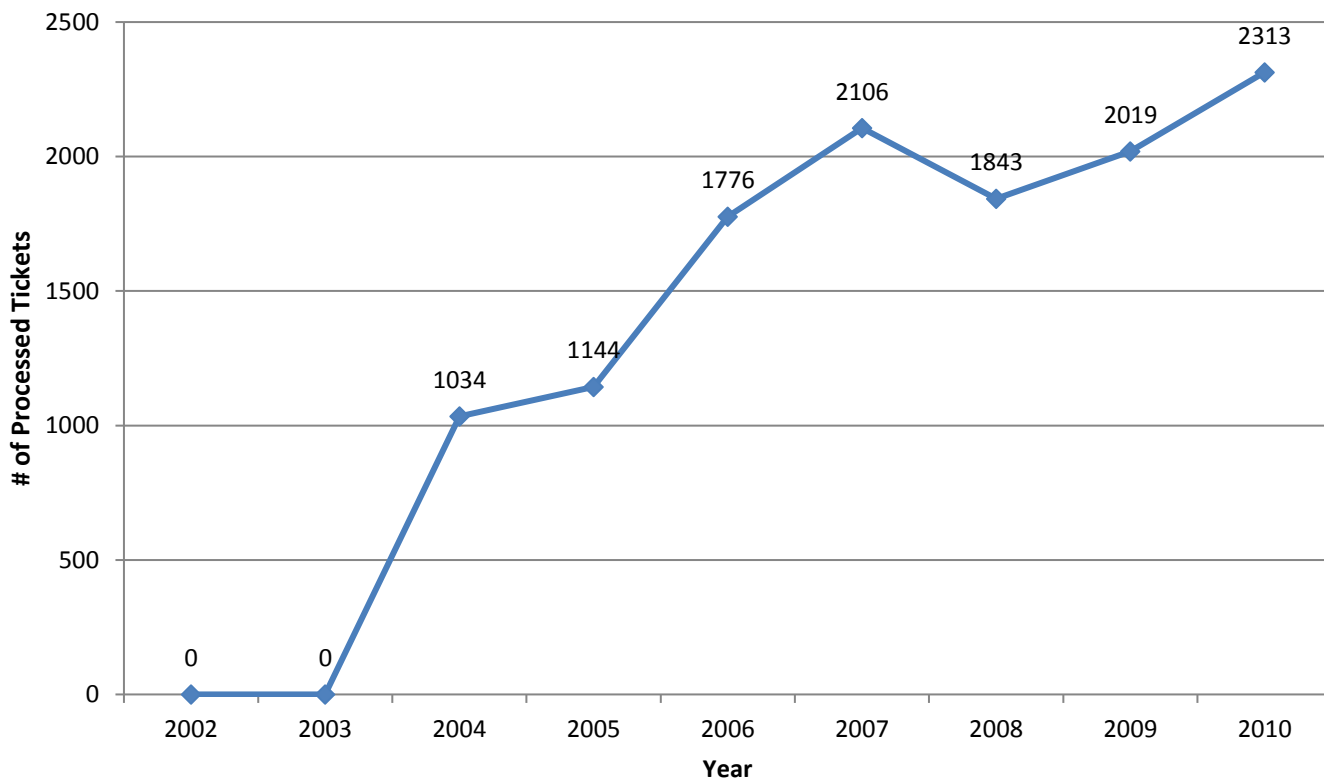
Milestone Achievements
The below activities represent major planning, acquisition, and implementation or troubleshooting efforts. They do not include daily and routine tasks.

Mobile Data Computers
- Final IPASS upgrade – vendor announced end of life of product with no replacement for this product.
- Radix Message switch upgrade.
- Nine client version changes that required the entire fleet to be updated each time. Each version had defects that would require significant amounts of troubleshoot and testing.
- Leads requiring 2 factor authentications on MDC's by 9/2010, this was dependant on the implementation of Netmotion.
- PADCOM mobile VPN discontinued, change to Netmotion planning was done and implementation started January 2011. This requires the entire MDC deployment process to be changed and additional infrastructure added.

Network Upgrades
- Built and implemented the new IP Telephony network segment on the Warren County Public Safety Network. The devices on this segment still need to be documented for PSN compliance.
- Our switch network had to have changes made to accommodate the new ESX and SAN Servers. During this time it was audited for deficiencies and corrective action plan laid out to implement in 2011.
- Emergency Services desktops placed in the PSN providing one common network domain between Telecommunications and Emergency Services.
- Common file sharing environment implemented for Telecommunications and Emergency services. This required significant planning and time to get data moved and backup protection in place.

Citrix Gateway
- Working with the Warren County Water & Sewer department (WCSW), we created an environment for the WCWS RSLogix applications that is now accessible via the gateway from anywhere the WCWS has connectivity.
- Implemented the ability for Franklin City to use GenWatch in their Dispatch Center via the Gateway.

Server Upgrades
- Exchange migration from Exchange 2000 to 2007 as well as migration of Dispatch users. An "in place" upgrade could not be done because we were consolidating domains.
- Audiolog Phase 1 – this project has been plagued by several issues between Telecommunications and vendors. Problems with the servers as well and the clients. Even with the significant amount of time given, phase one will not be completed until 1st qtr 2011.
- CAD DSS tech refresh and upgrade.
- BES tech refresh and migration for Exchange 2007.
- RSA appliances replaced- this was a major upgrade requiring all users PINs to be reset and reissued.
- Citrix PS4 was discontinued and we migrated to XenApp. During the year we decided to implement XenApp from a physical environment to virtual environment using XenServer. This resulting is cost saving of hardware and licenses.
- Implemented Mailmeter for better email compliance.
- Started implementation of WinInstall to replace IPASS. This will not be completed until late 2011.
- Installed a new Patch Management System (PMS) to ensure LEADS compliance with all clients in the Warren County Public Safety System. This will be completed in 2011.
- Added 2 ESX hosts, replacing 3 (had a total of 5) and repurposing 2 as XenServers. We now have 3 ESX hosts.

- The Genesis Genwatch server was assigned to DST to maintain. This process was turned into an appliance and reporting capabilities made available via desktops and the Gateway.
- FRMS –database upgrade.
- Universal Data Transfer (UDT) server was tech refreshed and upgraded.
- Completed external FTP access implementation.
- The Telephony Division Call redirector process was assigned to DST to create an appliance. During this process the use of Visual Basic was removed and replaced with simpler system and documented recovery and maintenance plan.
- Added SANS 3 and 4.

Dispatch Upgrades
- LEADS main terminal tech refresh and software migration.
- Replaced CAD Server, reloaded all CAD applications. This was a major hardware upgrade requirement significant amounts of planning, testing and post upgrade action. During this upgrade we had to change the way we do vCAD's.
- Power failure – Dispatch had 2 power failures that caused damage to equipment. With the help of the CAD/RMS, Radio and Telephony divisions, the power was redistributed and courtesy outlets added to each Dispatcher work area to allow for heaters, laptops, cell phones, etc without taking power from the Dispatch consoles.
- The Radio division placed heat vents to assist with cooling the Dispatch computers. This made the difference and reduced the failure frequency.

Other
- Water leaks in DST Offices and NOC – Outside wall was dug out and resealed.
- Basement floods causing damage – majority of basement was flooded.
- Asset disposal process changed requiring DST to redo a large amount of items that had been placed on hold for asset disposal.
- Assisted in implementation of the License Plate Reader (LPR) technology on the Law MDS's.
- Participated in the 2010 Symposium
- Trotwood PD, Montgomery County came to see how we implemented our MDC's.
- Current ticket system end of life was announced for 12/2010. A replacement will be implemented in 2011.
- Provided a mobile working environment for the Radio team.

Looking Forward:
- Sans 1 & 2 end of life 2012-2013
- New LEADS requirement starts in 2011
- Monitors and workstations warranty ran out after three years – 2011 is year four. Monitor replacements as well a workstation replacements need to be considered for budget. Needs assessment for Dispatch will need to be completed by Directors if technology platform changes are required.

- EOC – The technology needs and budget assessment needs to be considered in 2011.
- Serious consideration needs to be given to the replacement of LRMS and VisionTEK.
- Training in several areas are years behind.
- Implementation of a Standard Operation Procedure and Guidelines manual for the Data Systems Team.
- MDC's in the fleet are approaching 7 years old, Agencies will need to replace these.
- Clearcreek Twp. Canopy network components need to be replace and a replacement schedule implemented.
- End user contact with Help Desk process needs more accountability, still a fragmented process.

RADIO SYSTEMS DIVISION

Prepared by
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Our primary focus continues to be providing proper maintenance and improvements to the Communications System infrastructure by concentrating on the tower sites & sub-systems.

This year we have been able to begin the actual mobile and portable radio replacement and reprogramming phase of the FCC required 800 MHz frequency re-banding Sprint/Nextel program.

Following is a listing of major items the Radio Systems Division (RSD) addressed in 2010:

- Completed the pre-FRA preparation for the Sprint /Nextel Re-banding activity & started replacing/reprogramming mobiles and portables in our system.
- Completed UASI funded digital radio upgrades and the programming required to implement a second Police Primary for the Communications Center.
- Completed construction and licensing for the new Goose Creek tower at Caesar Creek State Park and placed it in operation in March.
- Upgraded the Microwave data backbone link between Hatfield and Zoar.
- Established Microwave backbone links between the EOC and Zoar and Zoar to Manchester. The latter provided the link to complete the backbone loop around the County. All primary radio system tower sites (except GC) have redundant Microwave access. (Goose Creek is slated for upgrade in 2011)   We also had an on-site engineering study & audit of the complete microwave backbone system performed by an outside contract firm. This inspection provided a benchmark for the system and its individual site operation, proving that we meet or exceed the standard of 99.999 % availability on microwave links.
- Refitted both the Zoar and Manchester Tower sites by replacing aging antenna components for the 800 MHz radio system and UHf Paging system.
- Inventoried the UHf Paging system then programmed and deployed over 200 new units replacing pagers that will not function when we complete the FCC required system narrow-banding in 2012.
- Designed and installed the telephone microwave link for the Armco Park facility. This link reduced telephone communication expenses by replacing leased lines.
- Last fall, we prepped the Black Hawk tower to become an active 800 MHz site by having the tower plumbed and the guy lines tensioned to the factory specifications, updating the Microwave dish to the current standard, replaced the old antenna feed line and demolishing the building to make way for the new communications shelter. We expect to have the paging system working at this site in 2011.
- Replaced the aging cooling systems at the Zoar and Lytle towers. Lytle tower was refitted to Motorola R56 standards with a new grounding system for lightning protection.
- Responded to and resolved 82 after hours DPR Requests for Service.

Tech Shop
- Handled normal work hour database maintenance and walk-in traffic:
- Repaired 72 radios.
- Supported system user changes, including the Police Primary split channel changes and the Re-Banding project by providing programming or firmware 'flash' upgrades to 520 mobile/portable radios.
- Resolved 218 Repair and Accessory invoices.
- Performed 3 mobile radio Removal & Installations.
- Continued system wide inventory reconciliation in support of Nextel Rebanding project.
- Maintained readiness of Hot Box Radios.

- Provided on-scene communications, radio support & service of the S.O. units on site for the Hill Climb event.

Department Man-hours for 2010
- Work Time logged 6,373 hours, plus 168 hours OT
- Vacation Time logged 271 hours
- Sick Time 139 hours

2011 Planned Activities
- Continue with Re-banding activities including Infrastructure.
- Expand Microwave system by adding:
  - Lytle to Hatfield
  - Lytle to Goose Creek
  - Blackhawk to Hatfield
  - Springboro PD to Lytle
  - Engineers office to EOC
  - Community Services to EOC links.
- Correct lightning protection and grounding issues at Manchester & paint tower.
- Complete and commission Uhf, Vhf and 800 MHz antennas on new EOC tower, disconnect and remove antennas and line from guyed tower.
- Remove guyed EOC tower.
- Install Uhf and 700/800 MHz antennas at Lytle and Black Hawk sites in prep for current Paging and future Digital radio infrastructure.
- Paint and refit Hatfield tower replace aging Uhf and 800 MHz antennas, add EMA Amateur antennas/line for both EMA repeaters. Relocate 146.865 MHz repeater from EOC to Hatfield.
- Commission new generator at Snider and redundant generators at Zoar, Hatfield, and Manchester.
- Install IP based alarm, notification and control systems at all sites, allowing status and control of sub-systems including generators via site computers & WCPSN Gateway.
- Continue with FCC required narrow banding of the Uhf Paging system infrastructure and subscriber units.

Prepared by
Adela H. Dingman, Telephone Systems Supervisor
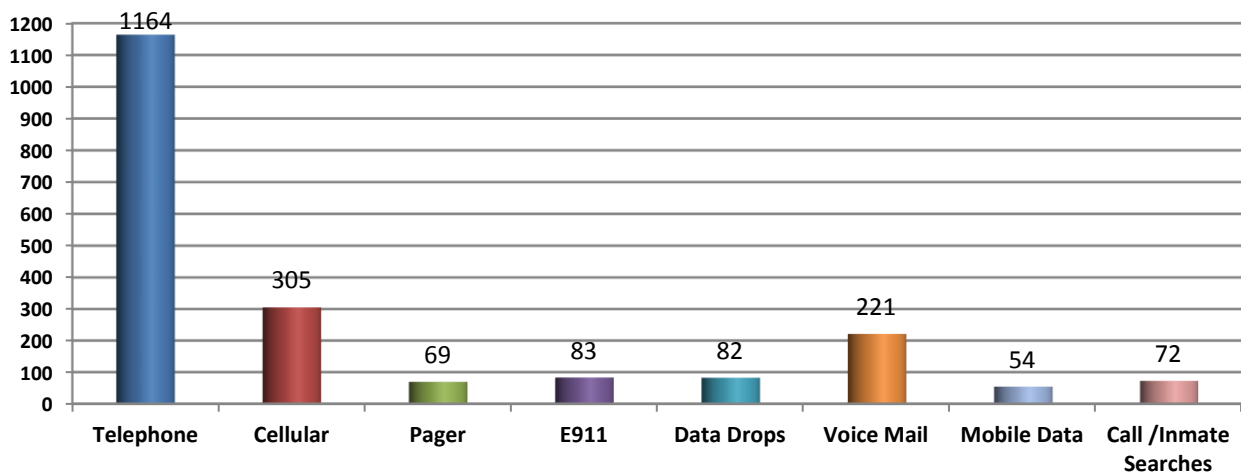513.695.1320   Adela.Dingman@wcoh.net

The Telephone Division of Telecommunications processes the majority of its work orders as an On-Call basis serving over 100 County, State, Federal and Private Agencies. The Telephone Division wires all telephone and data drops in all County buildings as well as manages all moves, changes and installing of temporary service to those displaced by construction. The division also provides all cellular and alpha paging services to county offices as well as assists Fire and Police Agencies of Warren County in obtaining contracts and maintenance of existing units.

The following is a list of major projects the Telephone Division configured, installed and maintained in 2010:
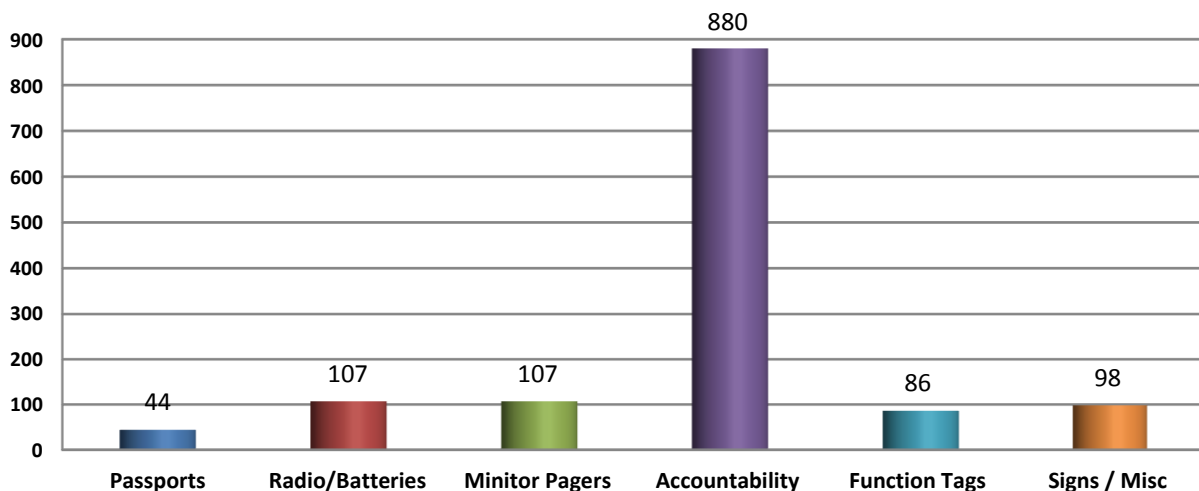
2010 Statistics

- **Work orders** - installation, operation, configuration, maintenance and repair of all county owned telephone/communications equipment and circuitry.

2010 Telephone Division Work Orders (2050 Total)

Telephone	Cellular	Pager	E911	Data Drops	Voice Mail	Mobile Data	Call /Inmate Searches
1164	305	69	83	82	221	54	72

- **Engraving**

2010 Engraving (1322 Total)

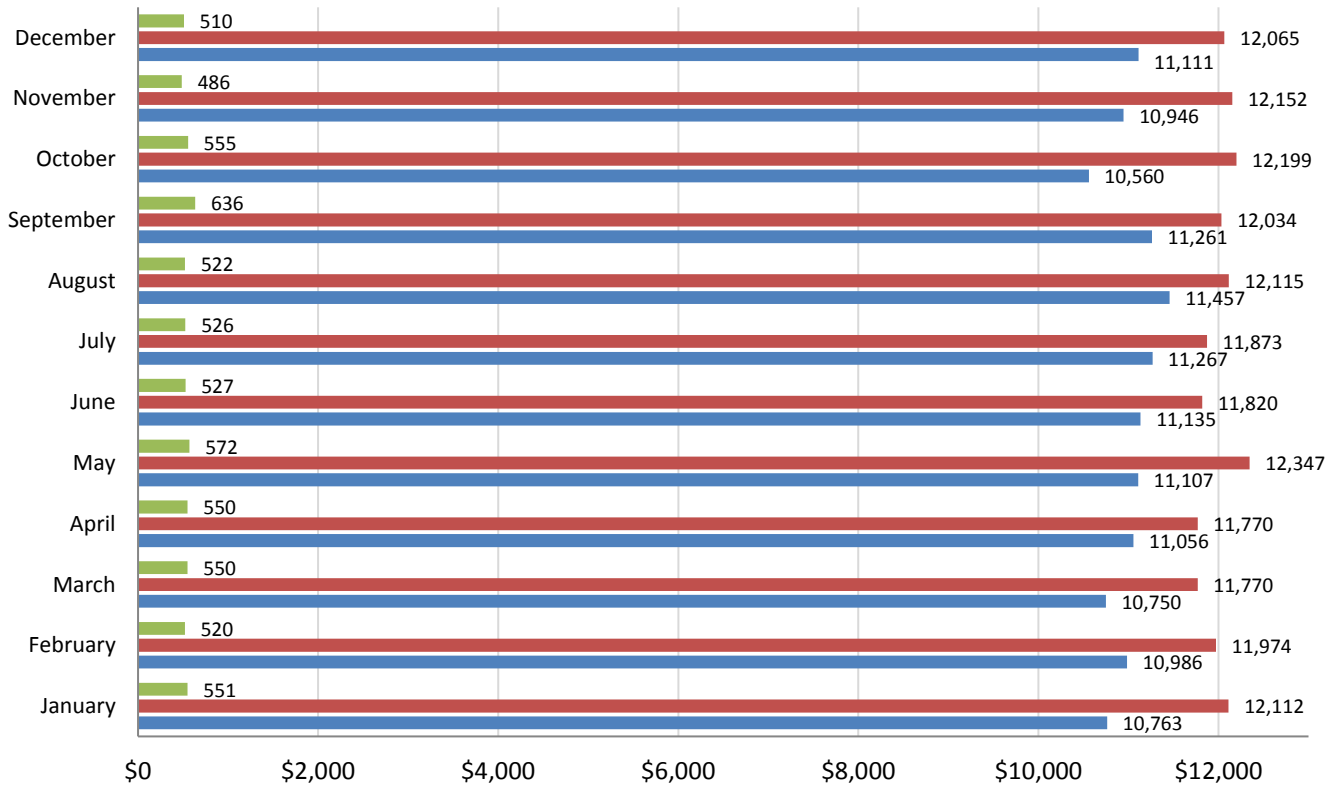| Passports	Radio/Batteries	Minitor Pagers	Accountability	Function Tags	Signs / Misc
44	107	107	880	86	98

- **Telephone Service** - Voice Mail, Fax Lines, Automated Attendant, Automatic Call Distribution, and Interactive Informational Recordings to solve our customer's needs. These services are non-commissioner funded and are billed to the agencies.
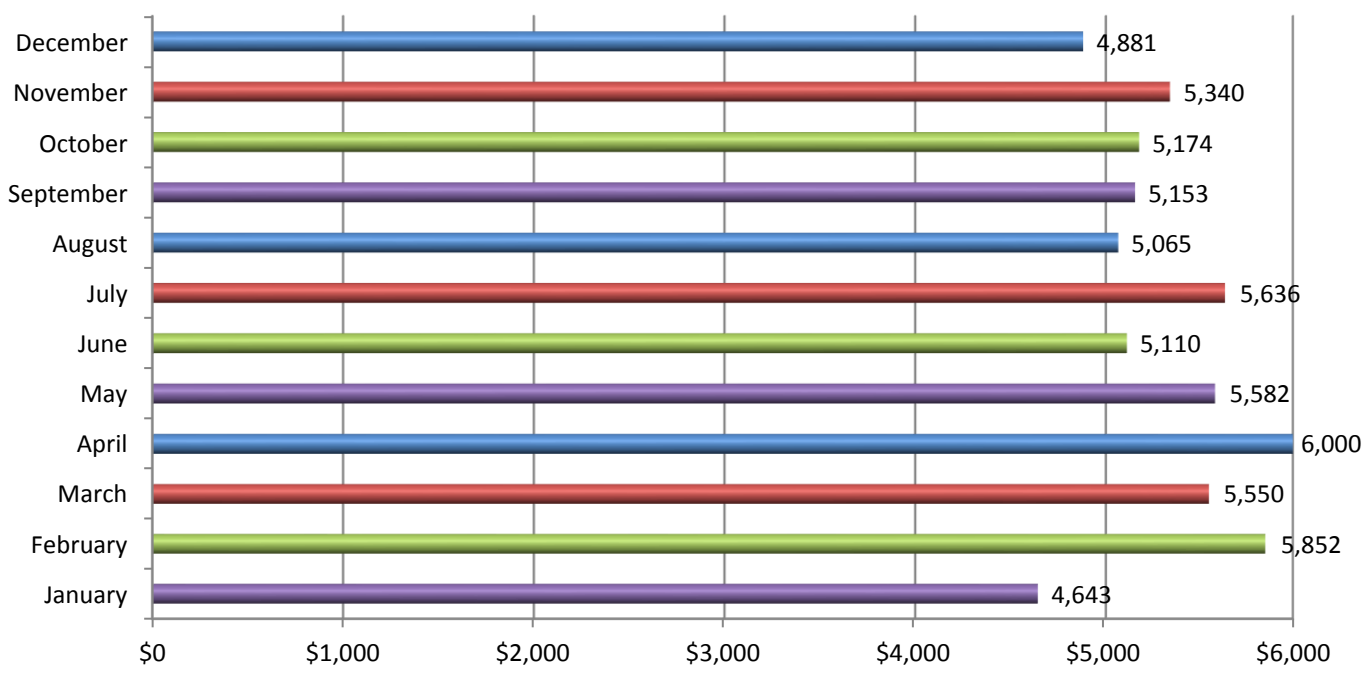
2010 Telephone Service Receipts (Total: $419,384.26)

Month	Amount
December	32,732
November	32,190
October	35,344
September	36,361
August	36,400
July	36,412
June	35,358
May	34,694
April	35,199
March	33,864
February	34,722
January	36,109
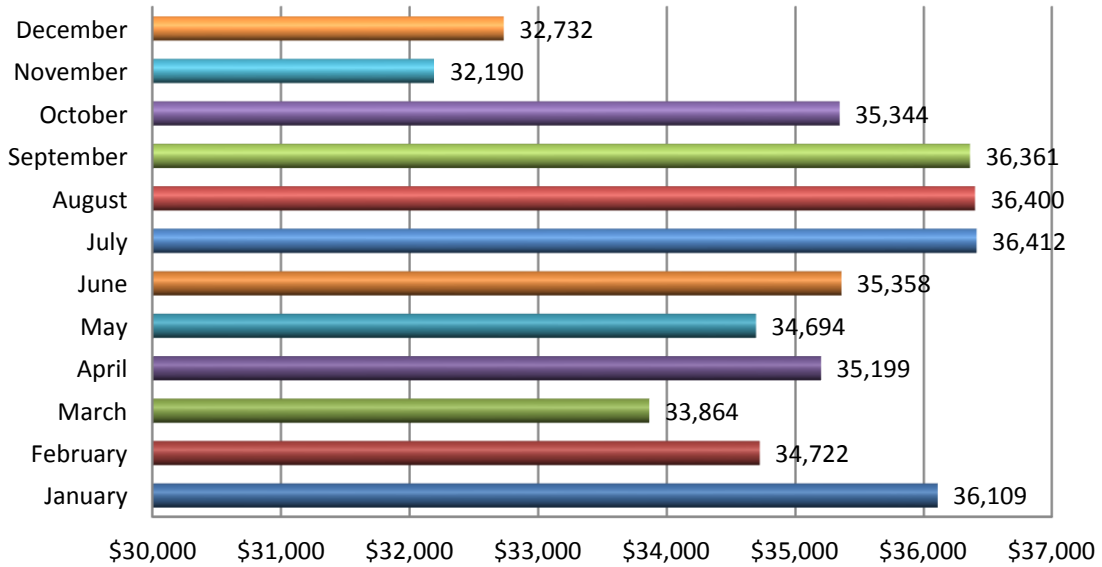
- **Cellular/Mobile Data/Pagers**

2010 Pager / Mobile Data / Cellular Costs

| Month	Pager	Mobile Data	Cellular
December	510	12,065	11,111
November	486	12,152	10,946
October	555	12,199	10,560
September	636	12,034	11,261
August	522	12,115	11,457
July	526	11,873	11,267
June	527	11,820	11,135
May	572	12,347	11,107
April	550	11,770	11,056
March	550	11,770	10,750
February	520	11,974	10,986
January	551	12,112	10,763

- **IC Solutions Inmate Services** – Warren County receives commission revenue based on the calls completed by inmates at the County Jail. We have significantly increased our call volume and revenue without impacting the family and friends of our inmates by switching to IC Solutions in 2004.

2010 Inmate Phones Revenue (Total: $63,986.03)

| Month	Revenue
December	4,881
November	5,340
October	5,174
September	5,153
August	5,065
July	5,636
June	5,110
May	5,582
April	6,000
March	5,550
February	5,852
January	4,643

- **Telephony Lines** – The Telephony division provides voice, voice mail, data, fax, HDSL and Internet services to various county agencies. We provide various types of voice and data connections such as: ATM lines, Postage Machines, Payphones, Court TV, Fire Alarms, etc.

Telephony Lines (3055 Total)

Category	Lines
Voice	2475
Fax/Modem	209
Auto Dial/Conf/Other	337
Inmate/Payphone	34
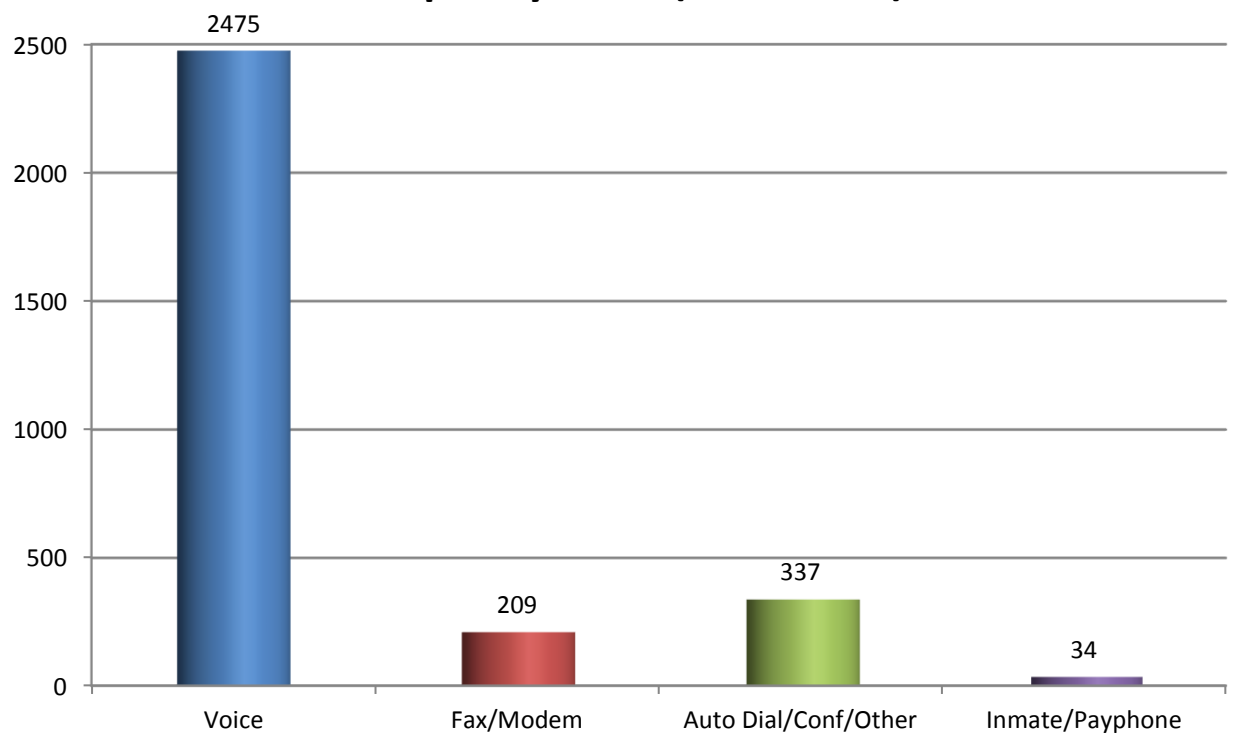
- **Wireless Lines** – The Telephony Division is constantly striving to find the most cost effective wireless solution for the County Agencies while making sure we have the best service coverage in order to meet Public Safety requirements.

Wireless Lines (631 Total)

Category	Value
Cellular Phones	118
Smart Phones	147
Data AirCards	299
Pagers	67
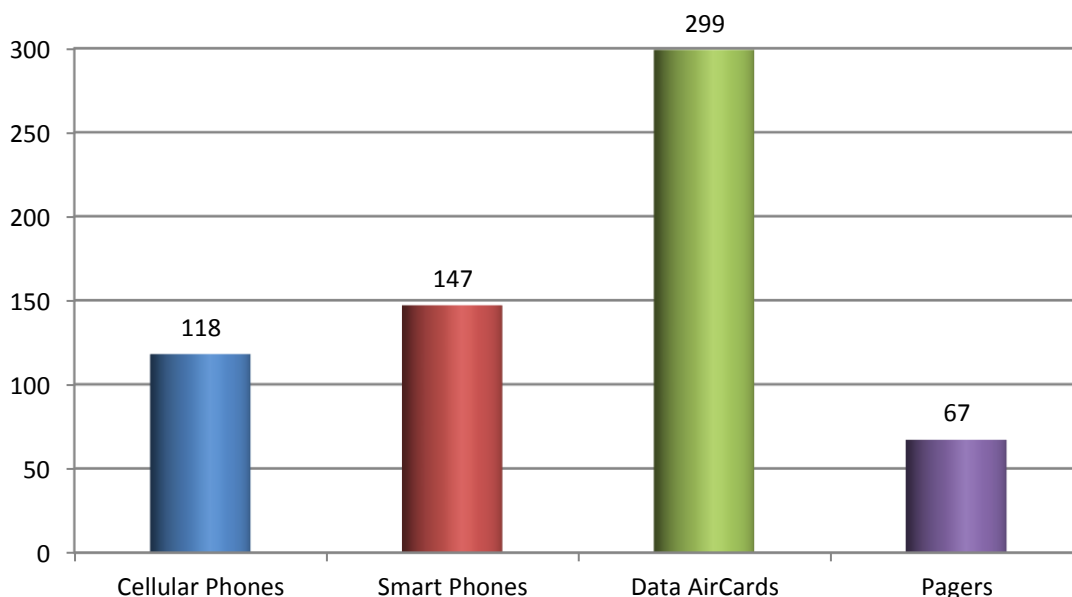
2010 Accomplishments
- Fiber Connection – The Telephony division installed new fiber optic cable to the Sheriff's Office & Jail increasing the capacity from 3 to 48 circuits.
- Telephone Service Billing – Implemented a Unified Billing System to better suit the County Agency needs as well as minimize employee time spent processing bills.
- Long Distance Access Charge – Implemented a $2.00 per extension access charge which includes all calls to toll areas.
- Phone System – Purchased a VOIP system with various telephony features to enhance our current phone system.
- Voice Mail System – Purchased a new voice mail system with more line capability and extra features.
- Community Services – Replaced the existing telephony switch at the 741 Center building in order to provide those Agencies with system redundancy and better call management.
- Armco Park – Working with the Radio Division, installed telephone services by reinstalling the old fairgrounds tower at the park. Used microwave equipment was also utilized in order to provide the park with much better communications than they previously had at a much lower cost.

2011 Goals
- Evaluate and Implement new Phone System with VOIP capabilities.
- Configure and implement new Voice Mail system.
- Implement electronic billing for telephone services generated through the new unified billing system.
- Design and implement an automated answering system for the Human Services Agency to better serve the public and allow for better call processing.
- Attend various online and physical courses in order to learn new telephone/voice mail systems and be able to implement them successfully to meet all Agency's needs.
- Install and configure a telephony switch in the new Oregonia Road building for the Board of Developmental Disabilities administrative offices.
- Continue to provide fast and efficient communication needs for all County, State, Federal and Privately funded Agencies currently on the Warren County Telecommunications Telephony systems.