Warren County-Ohio TELECOM

Annual Report 2022

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Contents

From Director Kindell

2022 was a year like we have never experienced; a year that brought some obstacles as well as some highlights. As the pandemic started to unwind, TELECOM had to find ways to continue to understand our agencies' needs and correctly predict outcomes for essential growth. Despite equipment shortages that slowed down our ability to replace aging systems and to deploy new ones, we successfully weathered disruption by developing short-term strategies to increase efficiency.

Staffing shortages were another obstacle that TELECOM faced. We had staff leave for better opportunities, which impacted productivity. It caused Managers and Supervisors to do triple duty and pick up slack left by departing staff. They spent hours reading through job applications and interviewing - all while keeping up with their normal duties. The entire TELECOM Team stepped up and helped make the struggles invisible to our customers Emergency Communications Center, Emergency Management, Fire, Police, EMS, Sheriff's Office, and all the Offices and Departments of the Elected Officials in Warren County.

When we did have time to work on projects, supply chain issues delayed projects often by six to eight months. It was not uncommon to hear it would be a year out before delivery of the necessary equipment. Our vendors also struggled to keep experienced personnel. This slowed some projects and delayed repairs as they also had to put more duties on the staff that stayed.

Shifting to the highlights of the year - the County Commissioners spent over a million dollars to replace aging public safety portable radio equipment. In some cases, the radios were approaching 15 years old! For security reasons, these radios were no longer viable to use on the radio system for public safety purposes.

In addition, 2022 was one of the biggest pushes toward our cyber security project. We implemented many new security measures, and it was one of the largest expenses to date in this category. While no one is immune from a cyber-attack, Telecom has implemented best practices and participated in several cyber drills and inspections. We continue to make improvements as we go, learning as much as we can along the way.

The challenges and the celebrations, the crises, restructuring, and strategies of 2022 helped us to reset & recalibrate. Build Loyalty. Identify Risks. We have overcome obstacles and continue to focus on building relationships and community.

serving Warren County since 1989

Administrative Assistants, Jessica Johnson and Debbie Griffith in 2022

2022 Expenditures

- Other, $12,559.20
- Benefits/Insurance, $544,694.80
- Operating Costs, $1,604,014.93
- Capital Costs, $2,026,952.11
- Payroll, $1,582,162.59

2022 Cost Recovery

- Verizon Equip $8,143.57
- Cellular Service $95,925.36
- Data Equip $36,170.06
- Infastructure Equip $11,511.80
- Telephone $236,640.25
- Inmate calling $139,544.87
- Mobile data $116,634.00
- Radio Equip $21,696.25
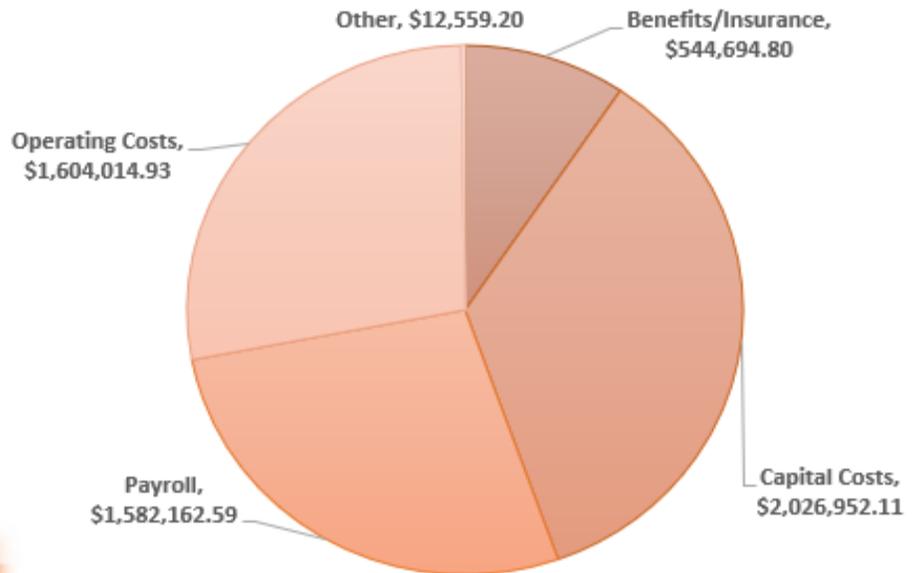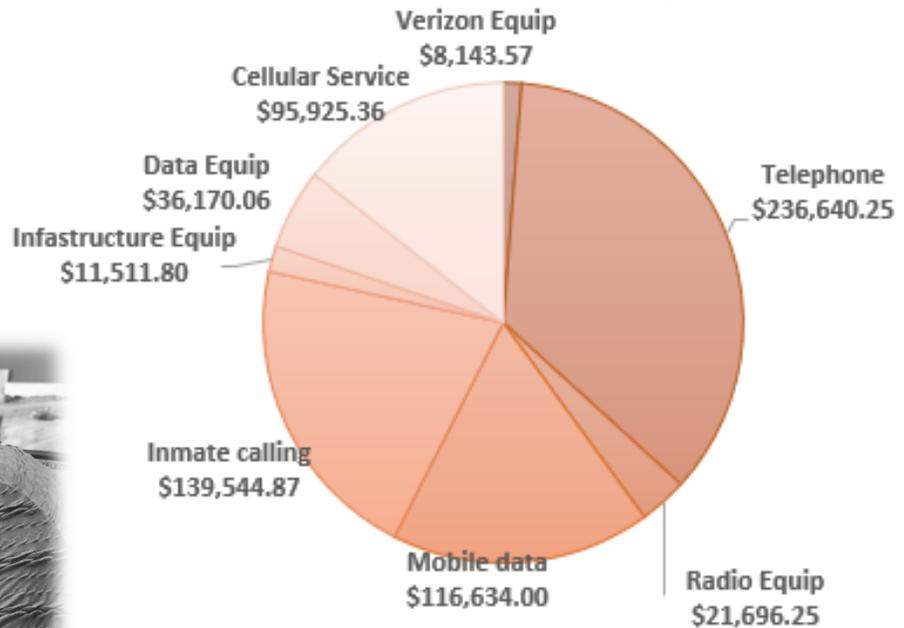
These two women have been crunching numbers and serving Telecom since 2003 & 2005!

THE **TELECOM** CREED

Warren County·Ohio

OUR MISSION

Established in 1985, Warren County Telecommunications has evolved into a 24/7 technology support provider for our partners in the public safety and government communities. With expertise in secure Data and Radio Systems, Public Safety Applications, Telephone, Training, and Administrative Support, we strive to provide reliable solutions that are in alignment with Warren County initiatives and leadership goals.

In support of this mission, we will:

- Partner with agencies and departments to understand their needs.
- Provide leadership, planning, and training for the effective use of emerging technologies.
- Demonstrate technical and operational excellence through a commitment to professionalism and continuous improvement.

OUR VISION

Warren County Telecommunications will be recognized as a high-performance team providing technical excellence that advances our partners in alignment with Warren County's mission and goals.

OUR CORE VALUES

Our core values drive and guide us as we serve our partners.
As members of Telecom, we are committed to:

- **Collaboration:** We are dedicated to a constructive, team-oriented environment, gathering varied perspectives, sharing knowledge, leveraging unique skills, and building effective partnerships.
- **Continuous Improvement:** We strive for operational excellence through the on-going development of our individual team members and technology.
- **Innovation:** We encourage creative and critical thinking.
- **People:** We respect, care for, and actively listen to our coworkers and agencies.
- **Service:** We push our limits to provide consistent, agile, reliable, and accessible services to all.
- **Transparency:** We maintain open communications and ethical business processes to be accountable in our interactions and our work.

OUR DECISION CRITERIA

1. Is it good for Warren County?
2. Is it good for our Partners?
3. Is it good for our Taxpayers?

Team Telecom

315 combined years of service to Warren County

Paul Kindell, Gary Estes, Paul Bernard, Dustin Flint, Jeff Cepin, Joseph Newton, Garrett Wilson, Jimmy Hollin, Allison Lyons, Lisa Hicks, Kristy Oeder, David Shiverdecker, Mike Callahan, Debbie Griffith, Rhonda Bernard, Corey Burton, Don Sebastianelli, Joshua Moyer, Jeremiah Marcum, Jessica Johnson, Philip Bomer, Kim McKinney, William Cornett, Alex Mokrycki

Telecom Excellence

An annual award for the Telecom team member who stood out as an example of Telecom's (6) core values.

2022 Winner: Rhonda Bernard was nominated by Gary Estes. A visit from her son and mom was the perfect surprise!

Honorable mentions: Jessica Johnson (endorsed by Rhonda Bernard), Alex Mokrycki (endorsed by Tommy Kramer), David Shiverdecker (endorsed by William Cornett), Tommy Kramer (endorsed by Corey Burton), Phillip Bomer (endorsed by Alex Mokrycki) and Jeremiah Marcum (endorsed by Paul Kindell))

2022 New Team Members

Jeff Boutell
Data Systems Tech I | March 2022
Tommy Kramer
Communications Systems Analyst I | March 2022
Tyler Blair
Infrastructure Systems Analyst I | April 2022
Alex Wicker
Infrastructure Analyst | May 2022
Lisa Hicks
Community Manager | August 2022
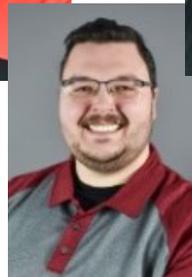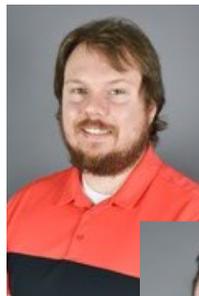
2022 Retirements

Don Sebastainelli after 46 years of loyal service to Warren County. He spent 4 years as an Emergency Police, 8 years as a Special Deputy, and 1 year as a Police Officer in Rye, New Hampshire. Over the course of 20 years, Don rose through the ranks of Warren County Department of Emergency Services from Dispatcher to Supervisor to Operations Manager, then Deputy Director. Notable career moments include answering Warren County's first 9-1-1 call, taking his brother's phone call then dispatching Fire/EMS for his own father's heart attack, creating, and maintaining the Master Street Address Guide, plus configuring and maintaining the first Computer-Aided Dispatch program. Don transferred to Telecom in 2008 as an Applications Analyst II, bringing unmatched knowledge and a magnificent attention to detail to become invaluable in the development and utilization of public safety mapping, mobile messaging, Computer-Aided Dispatch, 20 years as the Warren County 9-1-1 Coordinator, and large format printing. Don will be missed for his quiet but thoughtful demeanor, his holiday pumpkin bread and always-filled snack drawer, and his example to the younger generation of what it looks like to stick with one career for more than three decades!

Gary Hardwick after 14 years of service to Telecom! Before living in Ohio, Gary worked in Richmond, Indiana for Reid Hospital, Motorola Communications, the City of Richmond, Indiana's Communications Department where he installed the first enhanced 911 system in the State, and Harris/Allied Broadcast Division. Gary moved to Warren County in 1999 to work at Harris Broadcast Division's Headquarters in Mason, granting him the opportunity to travel to Glens Falls, New York and San Diego, California for business before joining Telecom in 2007 as the Radio Systems Manager. Gary's treasured Telecom career moments include changing out the Nortel microwave system to the NEC system, installing the System at Goose Creek, upgrading Black Hawk & Lytle, bringing tower sites up to Motorola R56 Standards in preparation for the new digital radio system then working with Motorola to keep the installation on track, the creation of the Radio Network Operations Center (NOC), replacement of the Telecom Tower, and relocating the Warren County Emergency Communications Center to 520 Justice Drive. Gary will be missed for his seemingly endless supply of fresh honey, his expertise in the field of radio communications, his calm sense of humor, his passion for teaching radio theory, and his never-give-up attitude!

Radio System

Figure 3.2. Digital Radio

Source: U.S. Fire Administration Voice Radio Communications Guide for the Fire Service (FEMA), June 2016

What happens after you push-to-talk but before people can hear you...

80 agencies + 61 schools in Warren County utilize our Digital MARCS P25 Radio System

Federal Due to Caesar Creek, we share talkgroups with Army Corps of Engineers and Coast Guard Auxiliary.

Interoperability with the State If a large-scale emergency occurs, we have the same talkgroups as other MARCS agencies. The Ohio Department of Natural Resources at Caesar Creek and the Ohio Department of Rehabilitation and Correction (prison probation officers) both have our talkgroups.

RTICP Telecom's Director & Community Manager maintain a 100-page Regional Tactical Interoperable Communications Plan outlining how counties in Southwest Ohio will communicate with each other. The Warren County Commissioners passed a resolution to adopt the plan in 2018.

Strategic Roaming is limiting radio traffic through the state to reduce potential busy signals. Director Kindell is an active member of the Statewide Interoperability Executive Committee (SIEC). A statewide Strategic Roaming plan recommends that local channels only work in and around one's county.

Regional We share an interoperability package with neighboring counties willing to mutual aid. Our 83TAC talkgroups work on MARCS towers within our county and one-county surround, allowing neighboring counties to hear our traffic from their station. **Countywide** Per the Board of County Commissioner's Radio Distribution Policy, all public safety agencies within Warren County are provided radios, at the Commissioner's expense, to utilize the countywide radio system. The obvious benefit of this is interoperability between agencies. Some departments opt to purchase additional radios and several other agencies such as Transit, Engineers Office, Public Works, and the Water Department conduct business on our system. All three PSAPs (Warren County, Lebanon, and Franklin) utilize our radio system.

Link Layer Authentication Required The State of Ohio MARCS is requiring that all radios have Link Layer added for security purposes by mid-2025. A price for Warren County agencies is being coordinated between Telecom and MARCS, but Telecom is offering to handle as much of the labor as possible at no cost to our partners. No work is scheduled yet.

Public safety radios provided by Telecom under the Board of County Commissioners' radio distribution plan will be flashed or replaced with radios that have Link Layer Authentication at Telecom's discretion and at little to no expense to the department. Public safety departments who own additional radios beyond the scope of the BOCC's radio distribution plan will be financially responsible for purchasing the flash kit and if an X-series radio (XTS, XTL), will be financially responsible for MARCS' portion of the work. Public works and road department radios will be at the agencies' expense.

Hotbox Deployments

Telecom maintains $82,000 worth of equipment ready for pre-planned or rapid emergency deployment. Long-duration incidents like searches or mutual aid calls like structure fires are typical uses for hotboxes. We can give Warren County-programmed radios to outside agencies who may otherwise not have the appropriate talkgroups to communicate with our agencies. Kits contain radios, batteries, chargers, headsets, and even battery packs for mobile devices. Our partners can reserve these resources from Telecom or emergency request from Dispatch. An on-call Telecom team member can deliver to you or you can pick up from Justice Dr. In 2021, we had (6) hot box deployment requests for Union Township Fire, Franklin Fire, Waynesville Police, Mason Fire, and Hamilton Township Fire.

Radio System

Board of County Commissioners Invest in Public Safety Radios | December 2022.

Public safety is the #1 job of the government. In an emergency situation, radio communications play a vital and active role in relaying information which may ultimately save a life, or lives.

In 2022, the Commissioners made the decision to replace all of the XTS2500 portable radios. Their plan was to provide these new radios to Police and Fire all at once, rather than over 3 years. The purchase order was signed Tuesday, December 6, 2022. This will increase the security of the system and reliability of the equipment used by first responders.

The Communications Systems Unit (CHARLIE) will work to have all radios replaced by the end of the 2nd quarter of 2023.

One Radio Network Operations Center (RNOC) provides the prime site control of the radio system and the interface to the State system. In the event that we lose contact with Columbus, the Radio NOC takes over and Warren County can operate in Site Trunking across our 10 tower sites, still maintaining local talkgroups. Each rack is fed by two UPS power supplies, offering a high level of redundancy.

Pictured above: Telecom's CHARLIE Team—Corey Burton, Alex Mokrycki, and Steve Jennison .

679 voice pagers

2,688 radios

69 radio repairs

139 aligned radios

65 alias changes

5 modified templates

12 new templates

527 maintained templates

6 Hot Box deployments

472 programmed radios

4.5 million push-to-talks

4.8 seconds average call time

248 days cumulative talk time

6.2% system usage

Did You Know? Telecom keeps in stock various radio parts and accessories for the ease of our partners to purchase and replace! But if you opt to buy independently, please refer to our Recommended Accessories Reference Sheets for XTS2500, XTS5000, and APX radios to ensure you're buying the most appropriate equipment.

NOTE: *in the 2nd quarter of 2023, XTS2500, XTS5000 will be obsolete.*

Radio System

BDA Improves Indoor Coverage

Schools and businesses are installing BDAs or "Building Distribution Amplifiers" that pull signal from the County radio towers into the building, improving first responder safety and communications!

Correctly installed BDAs have internal batteries in case power to the building is cut off. Because the BDA operates on the same frequencies as the County towers, the building owner must obtain permission from the County to operate the BDA. Further, the Federal Communications Commission (FCC) requires all BDAs be registered.

For new BDAs, the Authority Having Jurisdiction (fire department) must inspect the BDA and deem its adherence to Ohio Fire Code. The installer must supply Warren County Telecom with the test results of the BDA conducted under the watch of the AHJ. Telecom can then issue a letter permitting the building owner to operate the BDA. Because the BDA is a life safety device, all BDAs should be included in the fire inspection process and the batteries replaced every 5 years. Because the signals from BDAs can be harmful to the County radio system, it is important that 24/7 emergency contacts be obtained during the registration process in the event a BDA is causing interference to the radio system and needs to be turned off / repaired.


Radio Training

Radio is our most popular training topic. Previously, our Community Manager was the primary trainer for *all things radio*. In the summer of 2022, the Charlie/Communications Systems Team took over.

Other team members are happy to showcase their knowledge like Communications Systems Manager Paul Bernard, who enjoys teaching to each new batch of Emergency Dispatchers. **We encourage our partners to send their new hires to Telecom for a 90-minute radio class which includes a tour of Telecom and the Emergency Communications Center.**

Departments that consistently utilize our radio training include the Warren County Sheriff's Office, Court Services
(Adult Probation), Juvenile Probation, Mason Fire, Mason Police, and Clearcreek Fire District.

Pictured below: Paul Bernard, Steve Jennison and Tommy Kramer doing radio training.
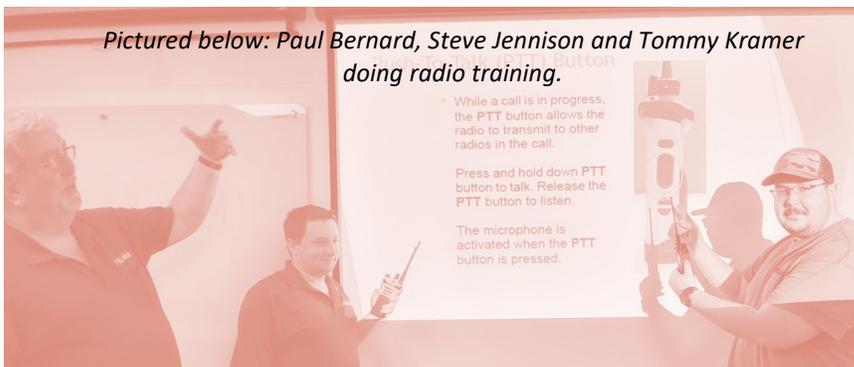
Tower Site Maintenance

You drive right by them… our (10) towers. Most known for offering radio system coverage to our 2,650 radio users, these 180-500' giants also provide the final leg for water department facilities and other countywide infrastructure. In the spring, we completed our annual Preventative Maintenance at each site, realigning and testing the equipment to ensure optimal performance on the State of Ohio MARCS system. We also completed generator maintenance and load test certifications.

- ❑ Checked generator mechanical + engine systems
- ❑ Changed generator engine oil,
- ❑ Checked generator cooling systems,
- ❑ Checked engine electrical and control systems,
- ❑ Ran generator at full output for two hours into a calibrated 'load' system that documents the actual capabilities of the generator under emergency conditions.

Weekly, we conduct a 30-minute load test to ensure that each generator is capable of supplying full AC power to its tower site, keeping our public safety radio communications available at the push of a button. All of the tower site generators have enough connected fuel to run continuously for 9 to 10 days in the event of power outage.

Following an inspection in 2021, we had six free standing towers & Zoar towers that we completed repairs to in 2022.

Dispatch Center *Technology*

Did you know that Telecom & Emergency Services co-inhabited the basement of 500 Justice from 1985-2014? Telecom does not staff the Warren County Emergency Communications Center, but we are responsible for maintaining the technology and equipment that feed the room, operate within the room, or leave the room. Director Melissa Bour and her amazing Emergency Services team are a high priority partner of ours, with a Public Safety Systems Manager and an Analyst responsible for ensuring the room, its systems, and its people can function at the highest level possible.

CAD Computer-Aided Dispatching is a key component of public safety communications, where calls for service are created and maintained. It bridges the gap between hundreds of first responders and the Warren County Communications Center, offering real-time updates to all. Telecom works with Emergency Services staff on a regular basis making adjustments to improve the workflow of the Emergency Communication Operator's. Public Safety System Manager Paul Bernard and Analyst Joshua Moyer also spend time in the Communications Center observing the CAD in action to see if there are any other adjustments that can be made to improve the ECO's workflow. Joshua Moyer also meets with both Law and Fire agency CAD representative to constantly test, review and adjust their settings in CAD to make sure their residence get the best possible response. He is also in charge of reviewing every new release for CAD ensuring we are up to date and that any issues we have found are reported to Central Square and fixes are applied as soon as we get them. One example of this is this year we added a Rapid SOS interface that pulls directly into CAD the potential life saving location data that RapidSOS provides. Before this interface, ECOs would have to manually enter the information from the 911 info screen or the RapidSOS portal.

## Update Screen Layout for the Emergency Communications Center

Telecom worked with Emergency Services to find and test a new monitor setup for the dispatch consoles. Both groups went into this project trying to find the best solution of monitor layout and size to improve Emergency Communication Officers (ECOs) work layout. Telecom installed new 49-inch widescreen monitors which will provide the ECOs with much needed screen real estate. Currently they have to stack several windows that hold vital information. With the new monitors they will be able to spread out windows allowing them to watch more. With the implementation of the Enterprise CAD they also have a lot more Queue Options. The new monitor layout will give them the opportunity to take full advantage of the queue options. Last year we also deployed larger 32-inch monitors that will be used for their CAD map, which has proven to be a vital tool with the Enterprise CAD. These new monitors have been ordered for the remainder of the consoles and will be installed in the coming months.

CAD-to-CAD with Neighboring Counties and Communities

Telecom has continued to work with West Chester Twp and Central Square to get the two CAD Systems connected. Our connection will be the first Central Square Enterprise to Central Square Pro CAD connection; therefore, we have been working through several issues with that connection. Once the issues have been resolved we will work with West Chester to test the connection and fine tune the settings. Emergency Services and West Chester will also work to develop MOUs for how each center will handle calls coming in from the connection. Telecom is open to connection to any PSAP in the region that would like to connect. If an agency or PSAP is interested in hearing more about CAD-to-CAD they can reach out to Analyst Joshua Moyer.
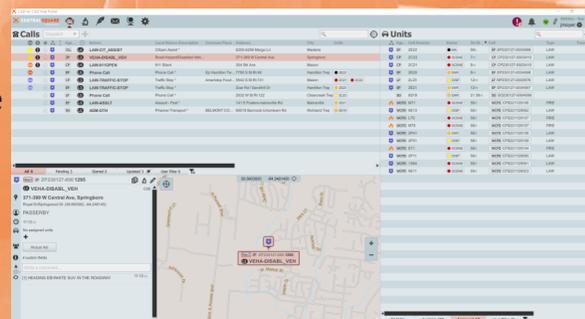
Dispatch Center *Technology*

HipLink allows recipients to receive *call for service information* and *alerts* via text message, email, or within the secure HipLink app. Telecom maintains the recipient list, interface, and vendor relations for this product, while Dispatch and CAD are the main information senders. At year's end, we had 1,453 receivers. 779 Groups. 54 Mobile App Users. 161 Departments. We had 1,246,776 pages sent in 2022. The Average Delivery Time to Carrier was 2.552 seconds.

Mapping Telecom maintains the source map used by CAD and Mobile which directs the CAD to the appropriate responding agencies, aids in address verification, and is customized for Public Safety use. The map on Mobile also gives first responders the ability to get turn-by-turn directions to a location. With the use of Address Points this goes one step more than Google or Apple Maps by getting responders to the door of the location. Including strip mall and duplexes, where we have address points for each business, apartment, and residence. We continuously work with local addressing authorities such as the Warren County Engineers office and other regional partners receiving subdivision, building footprints and city boundary updates. If agencies ever come across missing GIS data, they simply need to email our help system and we will get them added to the CAD and mobile map as soon as possible. This year David Shiverdecker has added 806 address points which brings our total to 117,154.

This year we started transitioning from ArcMap software to ArcGIS Pro. ArcMap was released in 1999 and it is slated to be End-Of-Life in 2026. This updated software brings more tools and options to David while maintaining our map data.

One other significant move we made this year was the purchase of ArcGIS Enterprise. This will allow us to offer even more services to our partners as well as making life easier for maintaining the map.

PSAP/9-1-1 A Public Safety Answering Point (PSAP) is a call center responsible for answering calls to an emergency telephone number (9-1-1) for police, firefighting, and ambulance services. The Board of County Commissioners, via Emergency Services, provides PSAP services to all communities except two that choose to operate their own communications centers (Lebanon and Franklin.) The Board of County Commissioners, via Telecom, provides 9-1-1 services and support to all communities in Warren County.

Radio Dispatching Telecom builds new console configurations as necessary. The Radio Team's daily Keep-the-Lights on responsibilities include checking all communication lines that run between the ECC and prime site (9-1-1, radio) and the connection with MARCS which ensures we stay connected to the State radio system.
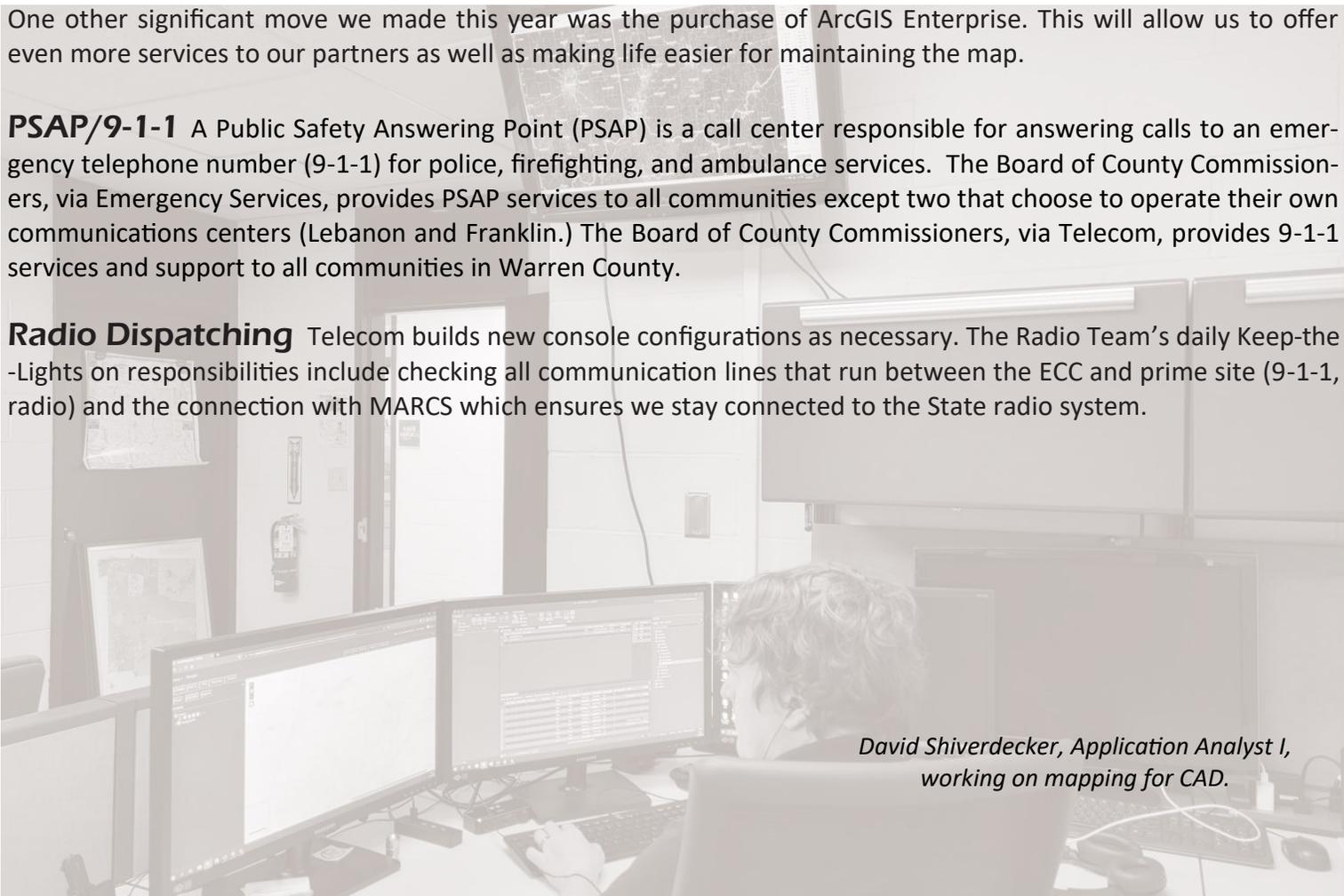
David Shiverdecker, Application Analyst I, working on mapping for CAD.

Dispatch Center Technology

Automated Voice Dispatching

In 2021, the BOCC approved Telecommunications to go to RFP for an Automated Voice Dispatching (AVD) system and Fire Station Alerting (FSA) system for Emergency Services and the Fire Departments we serve. Imagine being suddenly woke up in the middle of the night from a deep sleep by loud sudden alert tones and then trying to understand where you need to go and for what. AVD and FSA systems take into consideration the health and safety of emergency responders by providing ramped up tones which start out at a lower volume and steadily ramp up becoming louder. AVD also provides consistent rate of speech, tone of speech, and order of wording for consistent and easy to understand voice dispatches. This allows the responder to be woke up slowly and hear a slow steady consistent voice telling you where to you need to respond to. This also frees up the fire dispatcher to focus on other aspects of their job. FSA systems provide faster alerting of departments by being able to dispatch multiple stations or units at the same time for different incidents rather than one dispatcher having to pull-up the information, read the information to understand what it is saying, and then voice dispatch the call. With AVD and FSA, as soon as the call-taker sends the information to the queue to be dispatched, the system will automatically activate the tones, send the page, voice dispatch the call, and alert the station all without the dispatcher having to do any of this like they currently do.

Telecom released the RFP and *2022* and Locution Systems Inc was selected out of five vendors that submitted proposals. Several counties around us already use Locution and there were several other aspects that made Locution the best choice for Warren County.

Paul Bernard, Public Safety Systems Manager, Project Lead of Locution.

Locution is currently On-The-Air in the testing and configuration phase as we continue to review the thousands of streets, premises, address points, and units that all needed to be recorded for our system. Seven of the thirteen departments in Warren County have ordered the Fire Station Alerting systems to go along with the AVD system. The FSA systems at the stations are optional and were the responsibility of the individual departments to purchase and install. We hope to have the AVD portion live in production by the end of summer this year and the FSA systems live and in production by the end of the year.

Dispatch Problem Reports (DPRs)

A 24/7 open line of communication between the Emergency Communications Center (ECC) and Telecom. Dispatchers submit any problem, big or small, and our team members receive email alerts. If urgent, one or more of Telecom's 4-person on-call team will be paged out to troubleshoot and escalate if necessary. Reflective of a first full year on CentralSquare, we're not surprised that 2021 saw an uptick in DPRs this year.

> ### 660 DPRs submitted in 2022

CAD Interfaces

Are pipelines between two or more systems allowing information to flow between them. Below is a diagram of our active interfaces to and from CAD.

Notification tools on Fire/EMS Cellular devices

Active 911, IamResponding, and eDispatches

A web-based product that allows users to browse CAD activity such as Pending & Active calls as well as all Units status. (FREE to agencies)

A monitoring system to ensure connectivity, tower site activity, radio IDs, etc.

Enterprise API is an extension of CAD that lets us write custom programs to gather data, create custom commands for dispatch and other programs that can interact with CAD

HipLink

Station Alerting & Voice Dispatching

Gen Watch

CAD Paging

CAD Browser

Enterprise API

Radio

FieldOps is "CAD on your phone," a more portable way to receive and interact with Incidents. (App access is available for purchase through TC)

RapidSOS

External systems that send caller information into the CAD System

FieldOps

CAD

911

Reporting platform used to create custom reports (FireView Coming Soon!!)

CrimeView

Mobile CAD

Power Engage (CueHit)

Program used by dispatch to text additional follow up information and receive feedback from callers

TTMS

ESO EHR & Fire Incidents

LRMS

TriTech Message Switch is Central Square's "middle man" between CAD, Mobile, LRMS and Jail and Ohio LEADs

OIBRS

JMS

Ohio Incident Based Reporting System

Jail Management System is used primarily by the WCSO. Servers are maintained by TC

Mobile Systems for Field Users

Field Ops

Field Ops is an extension to the Enterprise Mobile product that "puts CAD at your fingertips." 2022 Telecom moved Central Square's mobile CAD application Field Ops into production. Several agencies have purchased licenses and taken full advantage of the application's features. Although Central Square has not added additional features to the application, it has proven to be a valuable resource to those who have purchased it. This is a great tool for Department Officers to monitor not only their department's calls and unit statuses, it also allows them to monitor the rest of the county. Some highlight features of the app are, View Incidents and Incident Information, Update Status, View Unit Statuses, and mapping. Agencies have the option of purchasing a license for Field Ops for $120 annually. One license can be used for up to two devices for a single user. If you are interested in seeing more about Field Ops or would like to get more information on purchasing a license, contact Analyst Joshua Moyer.
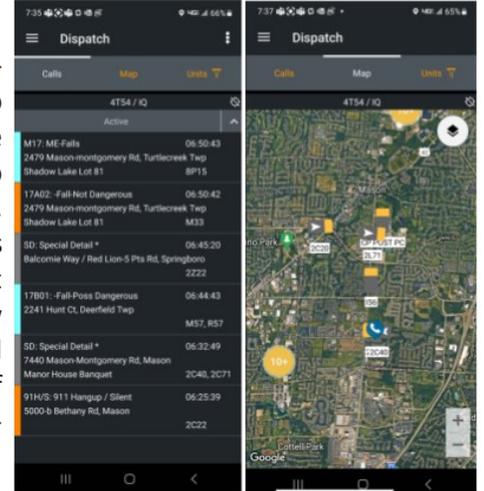
HipLink App is different than HipLink messaging in that it is a _mobile application_ that allows users to receive and send messages through the   Warren County HipLink system. All messages sent to and from the HipLink app are Encrypted. When receiving messages from within the app, users can easily confirm or refuse pages, notifying the sender of their response. Users can setup specific alerts for different priorities of messages so they can be alerted when getting paged. These alerts also have the ability to override a phones Do Not Disturb function. If enabled, the app also allows other users of the app to see your location for better incident awareness.

Did You Know? Verizon Mobile Data coverage is billed back to public safety agencies while Telecom manages the consolidated account. Agencies include Clearcreek Fire District, Carlisle Fire, Deerfield Twp Fire, Franklin Twp Fire, Hamilton Twp Fire, Harlan Twp Fire, Mason Fire, Massie Twp Fire, Salem-Morrow Fire, Turtlecreek Twp Fire, Union Twp Fire, Wayne Twp Fire, JEMS, Carlisle PD, Franklin PD, Hamilton Twp PD, Harveysburg PD, Maineville PD, Mason PD, Morrow PD, Springboro PD, Waynesville PD, Emergency Services, Telecom, and Warren County Sherriff's Office.

Pictured below: Telecom's Communications Systems Unit (CHARLIE) and the Data Systems Unit (DELTA).
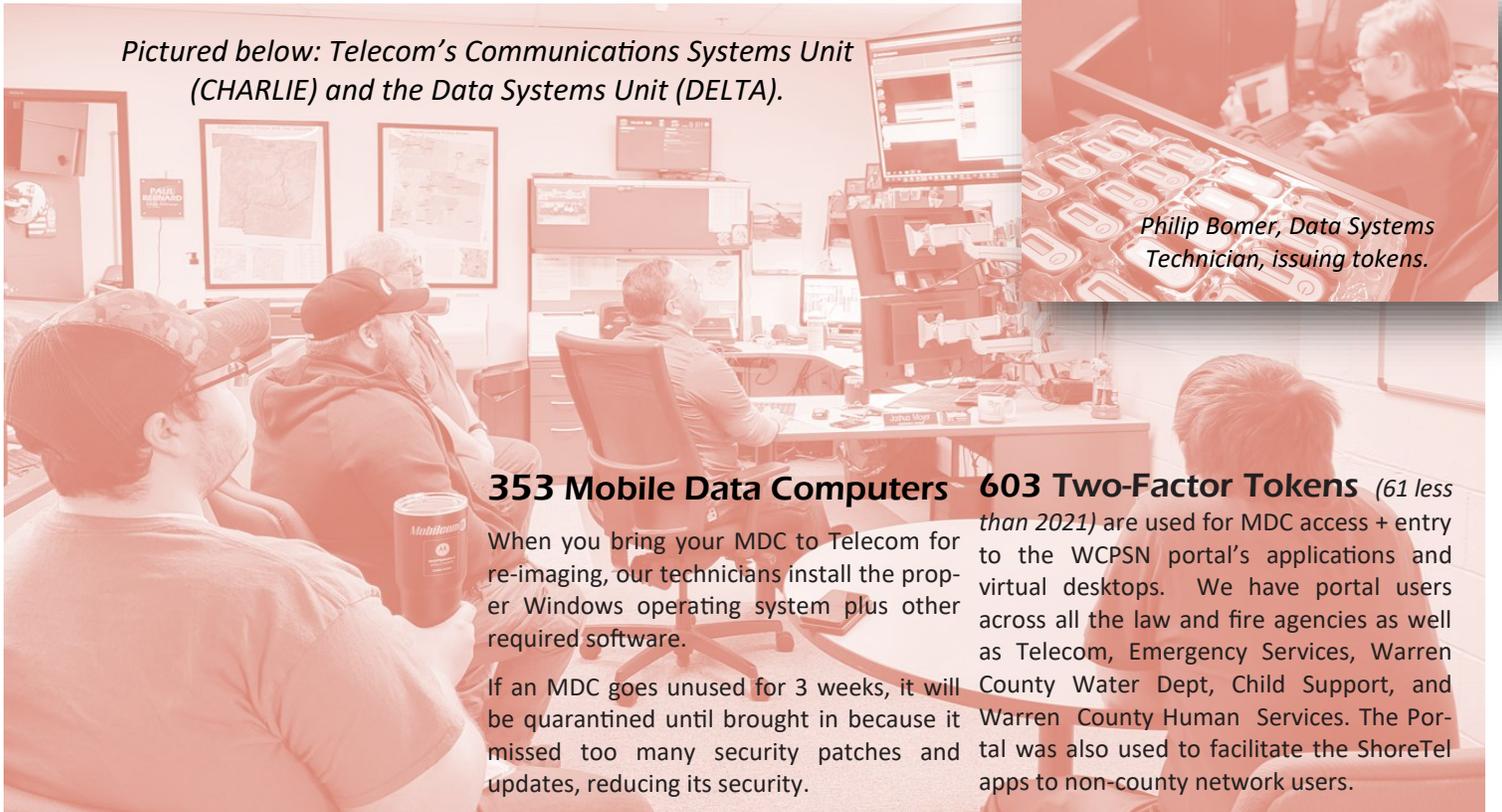
Philip Bomer, Data Systems Technician, issuing tokens.

353 Mobile Data Computers

When you bring your MDC to Telecom for re-imaging, our technicians install the proper Windows operating system plus other required software.

If an MDC goes unused for 3 weeks, it will be quarantined until brought in because it missed too many security patches and updates, reducing its security.

### 603 Two-Factor Tokens _(61 less than 2021)_ are used for MDC access + entry to the WCPSN portal's applications and virtual desktops.   We have portal users across all the law and fire agencies as well as Telecom, Emergency Services, Warren County Water Dept, Child Support, and Warren County Human Services. The Portal was also used to facilitate the ShoreTel apps to non-county network users.

Infrastructure Systems

Task Unit Bravo Buzz Words

❏ CPU Utilization— a computer's usage of processing resources.

❏ DNS / IP Filtering— Domain Name System filtering is a technique of blocking access to certain websites, webpages, and IP addresses.

❏ Ethernet— Your everyday interaction is most likely via an Ethernet cable, the cable plugged into your router.

❏ Firewall - a network security device to establish a barrier between your internal network and incoming traffic from external sources (such as the internet) in order to block malicious traffic like viruses and hackers.   East-west traffic (internal) vs North-south traffic (external).

❏ Interface - the point of interconnection between a computer and a private or public network.

❏ Layer 3 switch core — combines the functionality of a switch and a router. It acts as a switch to connect devices that are on the same subnet or virtual LAN at lightning speeds and has IP routing intelligence built in to double up as a router.

Pictured: Infrastructure Systems analyst, Jimmy Hollin

❏ Network— a set of connected computers. The connection between computers can be done via cabling, most commonly the Ethernet cable, or fiber optic cable. Connections can also be wireless (wi-fi via radio waves.) Connected computers can share resources like access to the Internet, printers, file servers, and others.

❏ Ping— Packet Inter-Network Groper allows a user to verify if a particular destination IP address exists / is operating.

❏ Port—a physical docking point for an external device to be connected to a computer.

❏ Subnet—a network inside a network; traffic can travel a shorter distance without passing through unnecessary routers.

❏ Switch— connects devices within a network (e.g. local area network, or LAN) and forwards data packets to and from those devices. Unlike a router, a switch only sends data to the single device it is intended for, not to networks of multiple devices.

❏ Web proxy—a computer on the internet with its own IP address that your computer knows. The proxy server then makes your web request on your behalf, collects the response from the web server, and forwards you the web page data so you can see the page in your browser.

DID YOU KNOW? We just surpassed the 6 year anniversary of our 9-1-1 System Cutover, during which we seamlessly transitioned systems with no interruption to our citizens or communications center. Go Live on Indigital Solacom Guardian 9-1-1 was on 7-7-2016 so coming up on 7 years in July 2023.

Countywide Participation

Telecom is the point-of-contact any time a 9-1-1 call cannot be completed within Warren County, at any of the (3) PSAPs for Warren County, City of Franklin, and City of Lebanon. Through our troubleshooting, we determine if the problem resides within the 9-1-1 system or if it is due to a phone carrier having issues. If an issue escalates, we submit a help ticket with the responsible company (AT&T, CenturyLink, INdigital, Verizon, etc.)

Pictured: Director, Paul Kindell

Primary System

Our standard mode of connectivity is fiber; but should that go down, microwave will continue 9-1-1 services for our citizens.

Secondary System

Housed at our disaster recovery site, it is online at all times. Should the primary system go down, the secondary system picks right up. It also provides connectivity to our secondary connection to the telephone company in the event that the primary system goes down. A call in progress gets reconnected in the event it switches to back-up.

Third System

In the event of multiple equipment or connectivity failures, Telecom makes use of MEVO Phones to completely bypass the 911 system and directly connect to In-digital in Indianapolis. 6 permanently installed MEVO Phones allow Dispatch to answer 911 independent of all systems in Telecom short of the internet. The MEVO Phones use the internet to VPN back to the Indigital NOC.

9-1-1 Coordinator

Paul Kindell is the county's 9-1-1 Coordinator. Josh Moyer and Paul Bernard assist with the 911 coordinator duties. Josh confirms coverage areas with cellular providers, verifying address points, and ensuring the proper PSAP gets the initial 9-1-1 call. In 2022, Paul Bernard attended the monthly meetings and gathered information for the 911 yearly report.

Text-to-911

Calling 9-1-1 is the preferred method but when a citizen is hiding, is non-verbal, or needs to remain quiet, texting is a great backup option.

In 2022, 195 texts-to-911 were sent
(5 less than 2021)
- 7 texts with Franklin Dispatch
- 29 texts with Lebanon Communications
- 159 texts with Warren County

9-1-1 System Testing

Did you know Telecom ensures redundant and diverse paths for our 9-1-1 system feed? Not wanting to rely on 1 method of transmission, we have connectivity via microwave (through the air) and fiber (underground).

9-1-1 CALLS TO PSAP

■ Franklin ■ Lebanon ■ Warren

Franklin 6066 8%
Lebanon 5489 8%
Warren 59259 84%
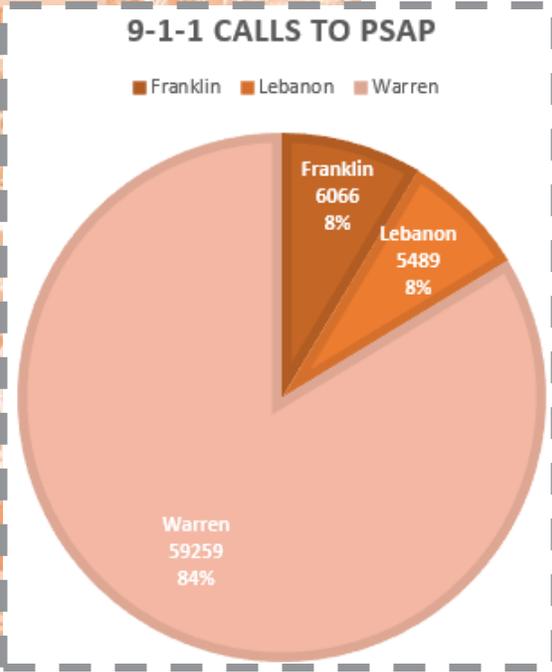
Accounting + Administration

Kristy
Oeder
since December 2016

Jessica
Johnson
since August 2005

Debbie
Griffith
since March 2003

Kim
McKinney
since October 2020

Pictured: the ALPHA Unit.

Our **Administrative Unit (ALPHA)** ensures that all bills get paid, mail goes out, equipment gets ordered, purchase orders get tracked (**141 in 2022**), and payroll gets processed on time or ahead of schedule. This four-woman team also maintains our meeting spaces, basement hygiene, handles intake of our help@wcoh.net ticket system, manages all cellular accounts/Mifi tablets/county desk phones and respective billing, accounts receivables/payables, asset disposables, assist with the budget, engrave accountability tags, and the Warren County switchboard (513-695-1000) on behalf of all Warren County departments.

Pictured: Kim Mckinney, Administrative Assistant.

7,023 switchboard calls were serviced in 2022!

16,648 HELP DESK WORK ORDERS COMPLETED IN 2022

All Telecom team members manage customer service and vendor tasks in the work order system. This ensures no request gets lost in the shuffle and the appropriate team member gets assigned to handle your need.
All partners should email help@wcoh.net with their service requests.

Supporting Communications: *Cellular*

VERIZON CELLULAR BILL

Invoiced to Partner, $96,825.50, 41%

Commissioner Funded, $142,073.38, 59%
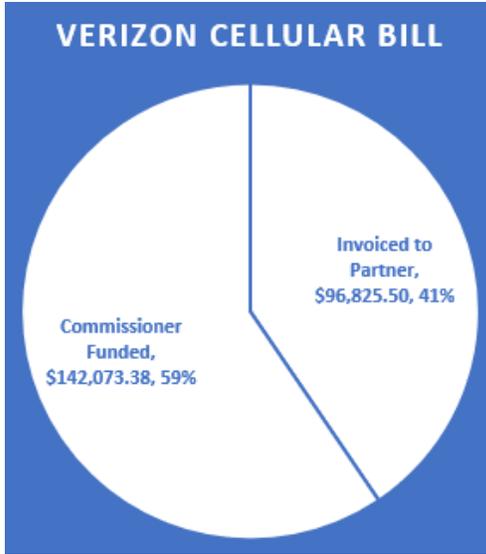
Cellular Devices

Telecom manages all County coworkers' cellular phone bills on one account, covering the expense for 46 departments then pursuing cost-recovery from 19 of them. This gets Telecom partners a bigger discount (fiscal stewardship of taxpayer dollars) as we essentially replace a Verizon store. County coworkers come to us for phone upgrades, accessories, and plan changes and troubleshooting.

Commissioner-funded: Auditor, Board of Elections, Building Department, Common Pleas, Court Services, Commissioners, Common Pleas, Coroner's Office, Domestic Relations, Economic Development, Emergency Services, Facilities Management, Garage, Information Technology, Juvenile Detention Center, Judge Oda, Judge Peeler, Juvenile Court, Office of Management & Budget, Prosecutor's Office, Telecom, Veteran's, Clerk of Courts, Warren County Court, WCSO, Workforce Investment Board.

Invoiced to Partner: Safe on Main, Armco Park, Children's Services, Dog Warden, Emergency Management, Engineers, Health Department, Job and Family Services, LEPC, Mary Haven, OhioMeansJobs, OMB Healthcare, Park Board, Planning Commission, Soil & Water, Solid Waste, Title Clerks, Title-Franklin, Water, and workforce investment board.

MOBILE DATA EXPENSE

Commissioner-Funded (Telecom, WCSO), $52,160.00, 31%

Paying Public Safety Partners, $116,634.00, 69%
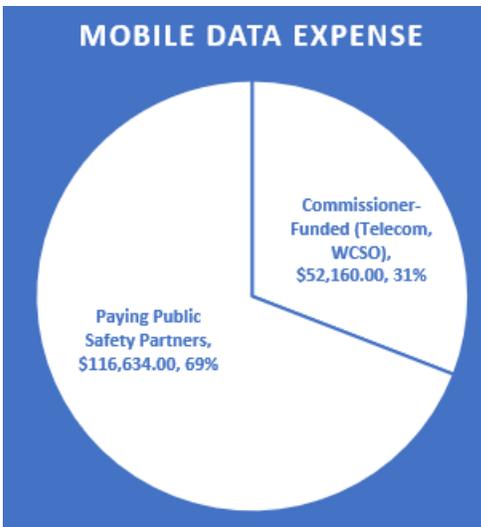
Mobile Data

Also in our consolidated Verizon account are public safety department connectivity devices (cradlepoints, MiFis, etc.) This achieves competitive cellular and data rates and also helps our partners use the correct devices for their job.

In-Building Verizon Connectivity

Telecom strives to keep connectivity a priority for our employees and county offices by installing Building Distribution Amplifiers (BDAs) throughout the buildings, courtrooms and offices (especially the lower levels) visitors and coworkers can better trust their Verizon devices to work. Note this does not enhance other cellular provider devices (AT&T, Sprint, etc.).
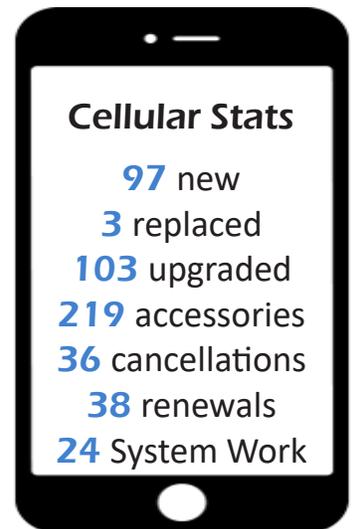
Enhanced Buildings: 5G tower on Justice Drive, to help boost connectivity for other cellular carriers like A&E and TMobile.

Cellular Stats

97 new
3 replaced
103 upgraded
219 accessories
36 cancellations
38 renewals
24 System Work

Did you know? We use an outside company that safely removes cell phone batteries before securely crushing them! Phones are not redistributed due to security and privacy issues. County coworkers are eligible to buy-back their cell phone with Department head approval.

|	FY 2022	FY 2021	FY 2020	FY 2019	FY 2018	FY 2017
Smartphones	250	368	315	340	299	300
Cradlepoint/Mifi's (Formerly Modem)	404	392	49	44	55	55
Cell Phones	2	12	8	14	37	37
Other Data Device	0	3	4	10	0	0
Tablets, laptop, toughbook	62	39	54	54	88	88
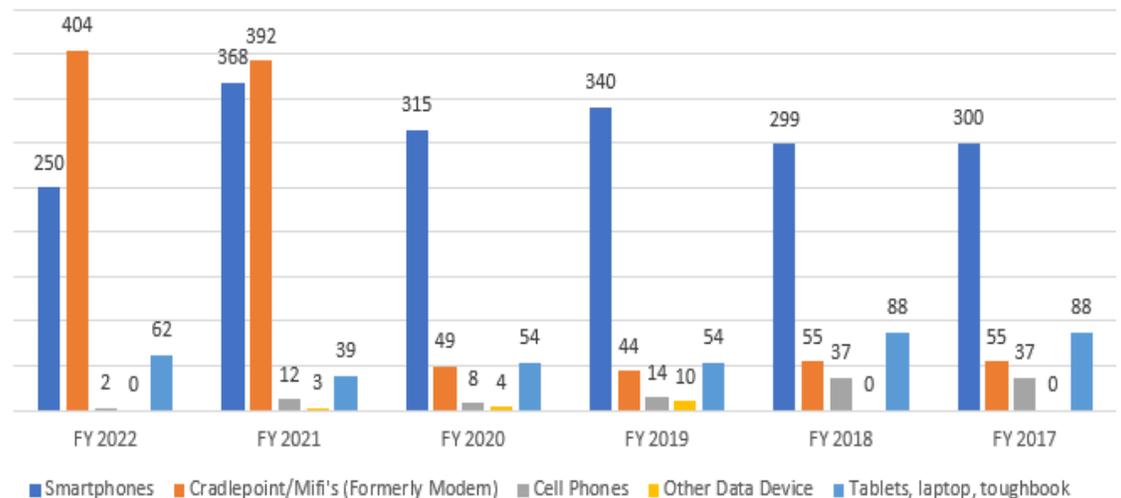
Supporting Communications: Desk Phone

Did you know? Telecom got its start in 1985 as one man telling the Board of County Commissioners that he could beat the private companies' telephone service prices and service? There's a documentary being produced about Telecom 1.0 (read more in the Community Management section!)

In 2022, all county departments migrated to the VoIP phone system, including Warren County Community Services. Several departments are billed directly by our Administrative team for their Telecom-managed telephone services including Armco Park, Children's Services, Dog Warden, Easter Seals Tristate, Child Support, Emergency Management, Engineers, Grants Administration, Health Department, Humane Association, Job and Family, Law Library, LEPC, Village of Maineville, Mary Haven, Metro Housing, OhioMeansJobs, Open Options, Ohio State Patrol, Park Board, Planning Commission, Adult Parole Board, Educational Service Center/Alternative school, W.C. Community Services, Mental Health Recovery Services, Safe on Main, United Way, Salem-Morrow Fire, Sewer, Soil & Water, Solid Waste, Title office, Turtlecreek Twp Fire, Workforce Investment Board, Water, WCCC Project Search.

In addition to maintaining the Emergency Communication Center's 9-1-1 phones, we also maintain their non-emergency "Admin" phones. For citizens or vendors needing to reach the ECC staff, 513-695-2525 achieves this without elevating the call o 9-1-1 status. In 2021, the WC ECC fielded 108,660 admin calls with the most on June 19th (452 calls.)

1,373 phone users accessing

1495 phone extensions *(+267 from 2020)* and

8 conference bridges with

807 voicemail boxes *(-22 from 2020)* generated

2,355,164 phone calls *(+95,769 from 2020),* totaling

77,865 hours of traffic *(+1,436 from 2020)!*

DESK PHONE EXPENSES

Billed to partner, $236,640.26, 44%

Commissioner funded, $305,485.72, 56%
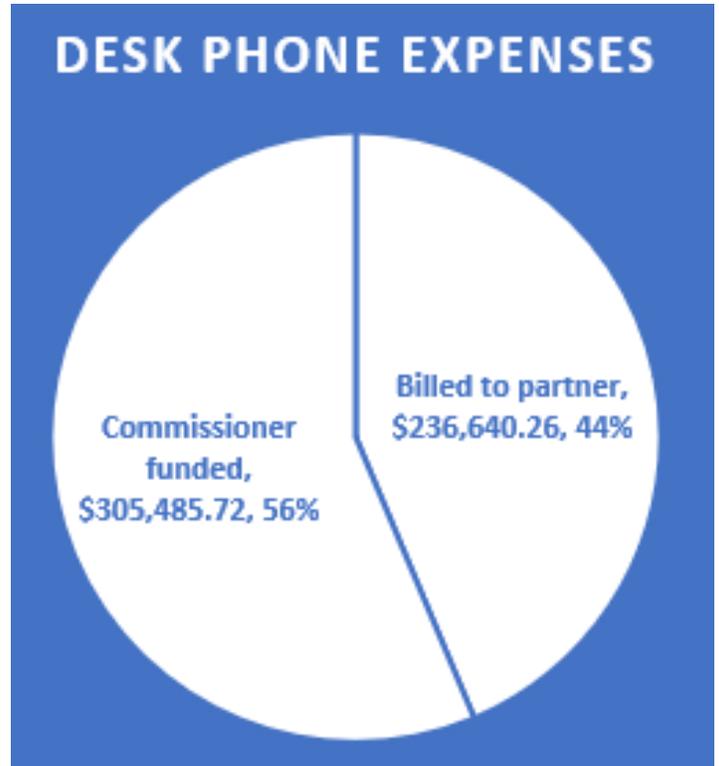
Dustin Flint, Infrastructure Systems Manager, running cable

Supporting Communications: Desk Phones + Drops

Paul Kindell, Director and Jimmy Hollin, Infrastructure Supervisor (2022)

Data Drops

Our Infrastructure team ensures all necessary drops are in place should telephone or computer systems need hooked up. This involves pulling CAT6 cable above ceilings and between walls, then ensuring proper cable management. Did you know if the Emergency Communications Center needs to evacuate, we have 911 drops set up in our Training Room for plug & play connectivity? We also assist Facilities Management in remodels of existing county buildings, relocating drops as offices and walls are rearranged.

Phone Service Now Utilized by Public Safety Agencies

What started as an offer for Fire/EMS agencies is now open to all Warren County-dispatched public safety agencies. For a monthly charge, less expensive than most private sector vendors, partners can get public safety grade phone service with no single point of failure, plus redundancy! Current partners include Salem-Morrow Fire & Turtlecreek Twp Fire.

- Agencies save tens of thousands of dollars PER station!
- Telecom keeps the Voice over iP phone servers patched and updated.
- You must have a reliable and reasonably fast internet connection plus a solid computer network.
- Office phones are $32.70 per month
- Bay, meeting room, kitchen phones are $15 per month.

Remote Phone Service

- Remote Work - Telecom continued to setup remote work from home phones although the majority of county coworkers have returned to office.
- These phones are still available for remote—to assign and unassign

The Shut Down of The Harris Phone System

On December 7, 2022, Paul Kindell, Director, flipped the "off" switch to shut down the Harris Phone System. The Harris Phone System supported the County for 30 years! All phone systems are officially on ShoreTel.

Paul Kindell, Director, shutting down the Harris System

Garrett Wilson, Infrastructure Supervisor (2022), Paul Kindell, Director and Jimmy Hollin, Infrastructure Supervisor (2022)

Records Management

Joseph Newton
since December 2015

FRMS

2022 would begin our final year using Zoll's FRMS product. This software had been used by all Fire Departments supported by Telecom from 2003 until November 30th, 2022. During that time frame, the system ended up creating 300,000+ completed records combined. This software would take information from Computer Aided Dispatch (CAD) to help create and begin Fire records used by Fire Departments internally, but also for ensuring these records collected data required by the state Fire Marshal for OFIRs/NFIRs submissions.
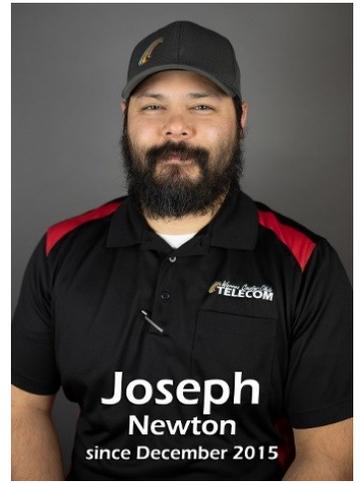
- ❑ 1000+ Incidents for 2022
- ❑ 300,000+ incidents for the lifespan of the Zoll FRMS (2003-November 2022)

ePCR

Electronic Patient Care Reporting (TabletPCR from Zoll) was introduced to our Fire Departments in 2012. This would be the first transition to a digital record from the Fire Department's traditional pen & paper records. The Fire Departments have always worked with Telecom since its inception to help ensure the system met all NEMSIS requirements and tweaked the system to accommodate the EMS protocols used by our Fire Departments.

Joe Newton, Data Systems Supervisor, collaborating with some Fire Agencies

In December 2022, Telcom transitioned to "ESO Suite" for Fire/Patient Care Reporting (PCR) Cloud Suite
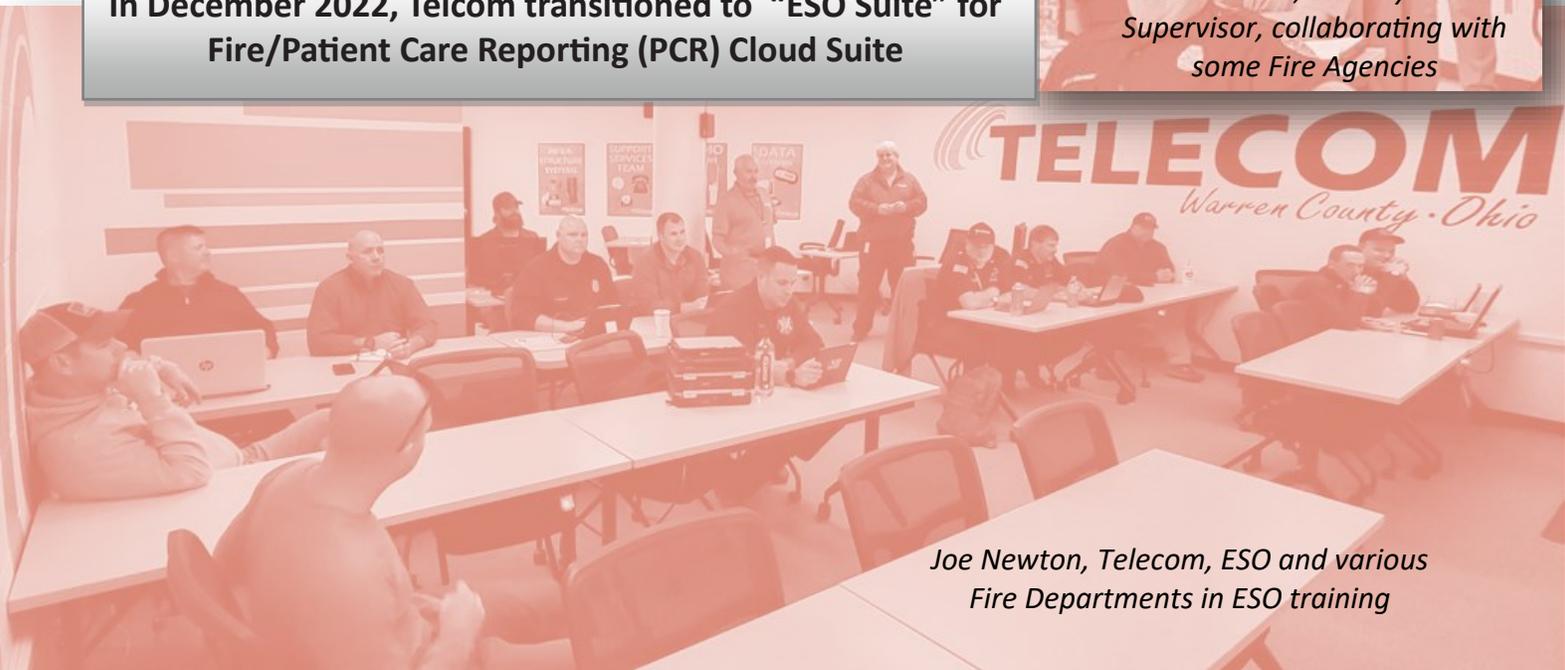
Joe Newton, Telecom, ESO and various Fire Departments in ESO training

In 2022, Newton serviced 405 Work Orders, most related to FRMS & ePCR.

Record Management

Rhonda Bernard
since September 2007

Response & Crime Analysis The record data we house on behalf of public safety agencies is used to analyze responses and crime statistics.

LRMS Law Records Management System is a function devoted to the life cycle management of law enforcement information - creation to disposition. Led by Analyst Rhonda Bernard, this includes identifying, classifying, storing, securing, retrieving, tracking, destroying, or permanently preserving records. It also entails solutions for incident reporting, data analysis, training, medical records, personnel management, and risk management.

2022 was a tough year but with many positive outcomes. Agencies can send their own OIBRS reports to the state for reporting. We have all worked hard to make this happen and to see the progress come full circle has been exciting and rewarding. Agencies are reporting a 1% or less error rate with the crime reports, our goal and what is acceptable to the State is 3%. I am very happy with those results. We still have a few open tickets that we are trying hard to get resolved. In prior years with our former Printrak RMS toward the end of life we were hovering at a 7-12% error rate.

Crash submissions to the Ohio Department of Public Safety has also been going very well. Agencies crash reports are sent to the state automatically when the report is approved. The Crash Task Manager allows for all reports that failed to be corrected and then successfully go to the State. Prior to this task agencies were making hard copies of crash reports and mailing them to the state which took time and money.

2023 will bring some positive changes. We will be upgrading to a new version of WebRMS 22.0. This upgrade will have a different layout but will provide users with the same quality they have come to expect.

Data conversion from incidents that were in our old RMS system will be available within the current RMS. This process has been very cumbersome. After many trials and tests, we believe we are finally getting the information to transfer into WebRMS. You can view what has already been converted using TestRMS, and we encourage every agency to do so.

Test and Training environments are available to everyone and encourage all to use these tools. These environments allow law personnel a safe area to explore the RMS system without corrupting "live" data. Manipulating the data in a live environment can cause issues with an original report. In the training environments, it does not matter because it is available for what it says-training. We do refresh the training site and you will see the same reports that are in the live version, as always, never rely on the data information in training. It could have been edited, modified, and changed.

I am currently seeking a court that would want to upload citation information to their court software. Agencies that are inputting citation information into WebRMS also are sending the information to a state warehouse. From this state warehouse the courts could import their jurisdictions citation information automatically freeing up time court personnel spend on re-entering the citation into the court software.   If you are interested in participating, please contact me. I am always looking for dedicated RMS users that want to be involved with RMS product enhancements. Rhonda.bernard@wcoh.net.

Pictured: the DELTA Unit
Jeff Boutel, Jeff Cepin, Philip Bomer, Joseph Newton, Rhonda Bernard and Josh Moyer

In 2022, Bernard serviced **614** Work Orders, many related to LRMS issues.

Reports

Reporting Warehouse

Since bringing a Database Administrator on staff, we've been busy building a reporting warehouse that can house data from multiple Warren County Public Safety Network systems and blend their data for reports that our users actually need and want. At year's end, we had 337 users with access to 252 reports thanks to connections with 8 environments with more than 85Gb of data.

Top 10 Reports

Report Name	Times Ran
Alpha Roster	1661
Inmate History by Name	1105
Inmate History by SSN or OLN	798
Inmate History	695
Court Report	654
Student Intervention Program	551
Charges Not Filed	549
Work Release -Litter Pickup Inmates	441

Top 10 users for 2022

User Name	QTY Reports Run
PSN\WCC2895	509
PSN\PR10329	421
PSN\WCC066	399
PSN\SO5025	334
PSN\SO5421	236
PSN\PR3561	219
PSN\SO1209	212
PSN\SO5365	203
PSN\wcc9470	202
PSN\PR7306	193
PSN\PR5812	184

Pictured: Jeremiah Marcum, Database Administrator

Monthly + Yearly Reports

Each month, Analyst Joshua Moyer works to generate several radio & 911-Phone reports to an online retrieval site. Here is a link to those reports.

Click Here

Joshua Moyer
since January 2017

CAD reports are not currently ran monthly and are more of an on demand requests. We have several tools to aid in running these reports, and if you have any reports that you need ran from CAD Data, feel free to contact Joshua and he can assist in getting these ran. These reports are meant to aid agencies in analyzing run counts, common incident types, call volume trends, and radio traffic trends. Some Chiefs rely on these to gauge staffing needs and to support funding requests. We can help with all these needs!

Here are some examples of reports we ran for agencies using our CrimeView Reporting tool:
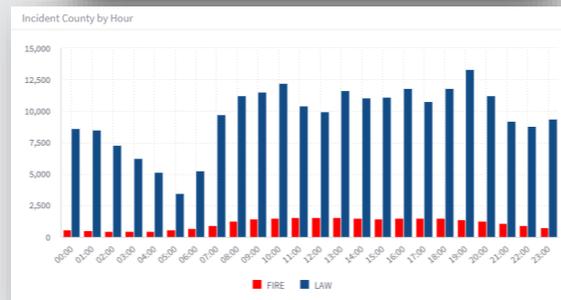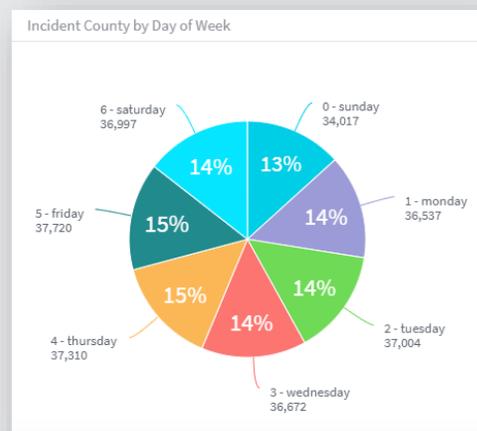
Incident County by Day of Week

- 0 - sunday 34,017 — 13%
- 1 - monday 36,537 — 14%
- 2 - tuesday 37,004 — 14%
- 3 - wednesday 36,672 — 14%
- 4 - thursday 37,310 — 15%
- 5 - friday 37,720 — 15%
- 6 - saturday 36,997 — 14%

Incident County by Hour

Disaster Recovery (DR)

Phone   In the event that the primary ShoreTel (Mitel) system goes down or we need to perform maintenance, the backup will keep our phones online. The DR site houses a backup for our conference bridge should Telecom's office be compromised.

PSAP / 9-1-1

On February 24, our 9-1-1 Disaster Recovery equipment was moved to a more appropriate building. Facilities Management (Trevor Hearn) supported in many ways, most importantly having an electrician on stand-by in case something unforeseen came up. Our 9-1-1 vendor provided technicians to ensure all call traffic was properly rerouted, to verify we stayed fully operational, and to make test calls. The purpose of this move was to take the 9-1-1 system out of the Radio Building and move it to the computer building. The Radio Building was full and we needed the space to move additional microwave equipment into the Radio Building. The Computer Building is also better suited environmentally to support the 911 computers and this better shields it from tower lightning strikes. We also upgraded the Text-to-911 cellular radios from 3G to 4G at both sides of the 911 system - Primary and Redundant. As hoped and expected, there was no outage and citizens / PSAPs saw no interruption in their ability to call 9-1-1.

Dispatch + RMS Services Telecom has seen major improvements with each new CAD suite brought online. The first generation was one PC which only allowed one dispatcher on a call for service at a time. The second generation product was enterprise-grade greatly increasing ease of dispatching. Our third generation came online September 1, 2020! A copy of our #ProjectTriTech (Central Square) CAD system will be housed at our DR site should the primary system go offline. Our approach has always been proactive, methodically planning every scenario possible.

Pictured: Tyler Blair, Infrastructure Systems analyst I and Alex Wicker, Infrastructure Systems analyst, inspect equipment.

"The Vault"

Team Members make vault runs several times per week where backup tapes are securely stored for the purpose of records retention and data recovery. These tapes include data for everything in the Data Center.

Physical Plant

Physical Plant is any location that Telecom is responsible for, and includes buildings, rooms, and structures. Some common components of these locations include:

Buildings the physical structure including doors, roof, rodent control, walls, etc.

Grounds access, driveways, walkways, and grounds control maintained by Warren County Facilities Management.

HVAC Telecom is responsible for ensuring that proper heating, cooling, and environmental monitoring is occurring.

Power (commercial and backup) Power is pivotal to any environment housing Telecom equipment and resources. Telecom utilizes battery, UPS, inverters, generators, and transfer switches as backup power should commercial power fail. This is important because if the local community experiences a power outage, Telecom's lights stay on, and this switch happens seamlessly.

Physical Security of our locations includes doors, gates, fencing, and related systems to make each site secure.

Main Physical Plant Locations

Data Center *see more on the next page*

10 Towers - (3) legacy tower sites were inspected and routine maintenance performed to align them with current tower safety codes. They carry the main radio system, hold the microwave antennas for backbone, and are the last mile equipment in that area. One site doubles as a Verizon platform. We're beginning to use the backbone system to extend the County VoIP phone system to county buildings not on the Justice Drive campus, where it's not feasible to run fiber cable.

In 2021, three (3) microwave links were upgraded to new equipment.

16 public safety-grade microwave links for the Data Backbone and System Control, VoIP traffic, voice traffic, radio, and WCPSN data.)

22 Microwave links for Public Works Information Backhaul, handling the data's 'last mile' from our towers to end users (water tanks, wastewater treatment plants, well fields.)

Telecom's Data Center has redundancy, two power systems, and high availability for both hardware and software. This Center houses data for LRMS, FRMS, CAD, ePCR, AudioLog, ICS, ShoreTel/Mitel, and HipLink.

Data Center

Connectivity (LAN, WAN, VPN, Internet)

We use multiple connectivity methods to keep systems, applications, and resources easily accessible for our partners.

High Availability One of Telecom's goals is to eliminate all possible single-points-of-failure so that in the event of a system failure, our partners continue to operate as normal. With this in mind, many systems are redundant, so that in the event of a failure, resources are still available.

Backups Telecom utilizes several different backup policies and types to ensure that data is backed up for data recovery; and to meet archival requirements. We performed over 40,000 full back-ups in 2022.

Testing Firewall System Failover, Internet Failover, Mobile VPN Failover, Data Restore, Virtual Machine Restore.

Data Warehouse Telecom made great improvements in our ability to house data, package it, and make it usable by our customers. In the past, there were reports for law and ePCR on our end but jail data was in its own environment. Our data warehouse is now one unified location for all of those reports to reside together.

Security Telecom is held to the standards of CJIS (Criminal Justice Information System), LEADS (Law Enforcement Automated Data System), and CALEA (The Commission on Accreditation for Law Enforcement Agencies.) These drive how we store/retain/protect the data of our customers. We are periodically audited for security compliance and are constantly trying to stay ahead of the latest security risks.
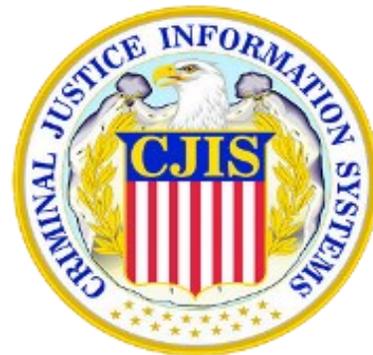
Audits and Assessments

Managing a network as large and complex as the County's Public Safety Network (PSN) is a daunting task. Adding reliability and continuous operation requirements for public safety operations makes this effort even more challenging. To baseline network architecture, support, and cybersecurity requirements appropriately, *Telecom* requested several assessments based on a set of mature, broadly accepted IT standards. The standards utilized include:

1. Association of Public Safety Officials (APCO)/National Emergency Number Association (NENA) IT architecture and support standards.
2. National Institute of Standards for Technology (NIST) IT architecture and cybersecurity standards.
3. Task Force for Optimal PSAP Architecture (TFOPA) cybersecurity standards.
4. Information Technology International Library (ITIL)/International Organization for Standards (ISO) IT Architecture and support.

Types of Assessments in 2022:

Assessment #1—Public Safety Network Assessment.
Conducted by: Mission Critical Partners
Scope: Look at our PSAP and ECC Network and Technology.
Measured against all 4 above standards
The MAPS assessment enables Telecom to easily discern and understand where it stands related to the five critical factors. A key element of MAPS is a color coded, visual "blueprint" (see figure below) that depicts the status of each factor assessed. Green indicates factors that are public-safety-grade and thus not in need of immediate attention, yellow indicates factors that are transitioning to public-safety-grade, and red indicates factors that are at high risk.
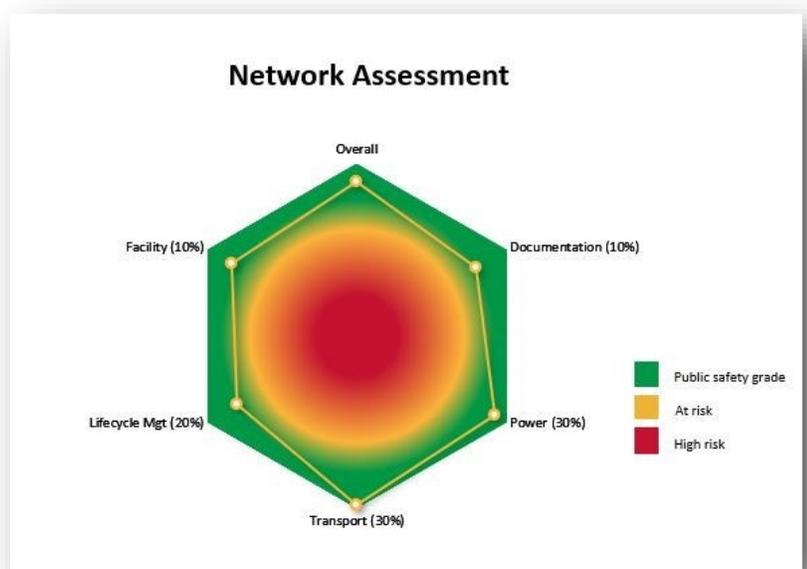
Figure 1: CAD Network Assessment Kiviat Diagram

MCP determined the overall score for Telecom's CAD network and infrastructure to be 90.99%. As depicted in the diagram, this score reflects that the network exists with a failure/disruption risk level that meets the standards-based definition for public-safety-grade. In other words, the network currently exists in a state—with respect to the risk of failure and disruption—that is appropriate for emergency response dispatching operations.

Assessment #2— Telecom/**Federal CISA—Cybersecurity & Infrastructure Security Agency**.
Conducted by: CISA volunteered to have them do PSAP and ECC security audit
Measured against all 4 above standards

Assessment #3— Telecom assisted Warren County Water & Sewer.
1. Network & technology—MCP
2. Physical & Cybersecurity—SCD
Measured against all 4 above standards

Telecom and Emergency Services partnered in the South West Ohio Cyber Table top Exercise.

Cybersecurity
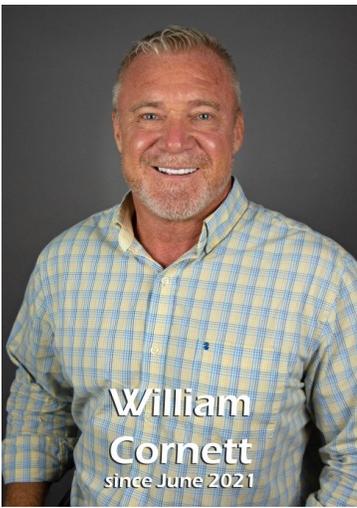
In 2022, at Warren County Telecom, we have been hard at work. We have worked intensely on improving our cybersecurity capabilities and maturing as an organization. In summary, we have deployed a cybersecurity awareness training program, advanced through critical security controls implementation group one documentation, formalized our risk management methodology, began codifying our processes with policy, and preparing for a third-party independent compliance audit.

William Cornett
since June 2021

Cybersecurity Framework

Warren County Telecom has adopted the Centers for Internet Security's: Critical Security Controls v8, framework (CISv8) as our roadmap to building, enhancing, and maintaining the most secure network reasonably possibly. CISv8 consist of 18 control categories divided into 3 implementation groups, consisting of 153 safeguard controls. Additionally, we reference NIST SP 800-53 Security and Privacy Controls for Information Systems and Organizations to enhance our security controls implementation.

Governance

Governance is the process where organizational leadership direct and manage enterprise network infrastructure security using process, procedures, guided by policies. It is an ongoing process of checks and balances to ensure process, procedures, and policy are relevant, implemented, and updated.

Risk Management

Risk Management is the process of quantifying, evaluating, and prioritizing potential assessed risks to an organization based on their entire operation. Risk management requires an organization make fiscally responsible choices when choosing solutions that controls, monitors, and mitigates risks which can have negative consequences to government organizations. We model the NIST SP 800-37 RMF (National Institute of Standards and Technology Risk Management Framework) to inform our risk management decisions.

Fourth quarter 2022 we went through a cybersecurity assessment conducted by the Federal Governments Cybersecurity & Infrastructure Security Agency

Compliance

Compliance involves adhering to rules, policies, standards, and laws set forth by industries and/or government agencies. Failing to do so can cost organizations in terms of poor performance, costly mistakes, fines, penalties, lawsuits, and loss of life. We have built and continue to put technology, policy and procedures in place that will ensure our Public Safety Network is compliant and remain compliant with industry standard best practice and security frameworks controls.

Vulnerability Management

We continue to maintain a robust vulnerability management (vMAN) program. vMAN is the process where use specialized software to scan the network looking for misconfigured appliances and software. Additionally, we run the scanner after each patch cycle to ensure patches have been applied.

Audits & Assessments

Reference **Types of Assessments in 2022** Audit #2 and #3 on the previous page of this report.

Cybersecurity

Event: Texas Wesleyan—Recovering From Cybersecurity Incidents

Network Security

Endpoint Detection and Response (EDR) is online and active in our Public Safety Network (PSN). EDR aims to target advanced threats maliciously engineered to get past primary defenses and infiltrate our environment. It can analyze the nature of the threat and give your IT team information regarding how it was initiated, which parts of your network it has attacked, what it is currently doing, and how to stop the attack altogether.   Warren County Telecom has deployed EDR protection on all Public Safety devices that connect to the Warren County Public Safety Network. *In total, Warren County Telecom is monitoring & protecting over 800 computer workstation, mobile devices, virtual desktops, and servers.*

Cybersecurity Awareness Training

The weakest link in cybersecurity defenses is the human factor. Researchers have determined that over 90% of breaches are the result of human error. Many breaches resulted from users visiting a malicious website, sharing too much personal/organizational information, clicking a link in an email, or opening an attachment. In June of 2022 Warren County Telecom stood up a world-class enterprise-wide cybersecurity awareness training program called KnowBe4. This training consists of brief, engaging, and informative training. To reinforce this training, we use an artificial intelligence algorithm to generate fake phishing emails. These messages are sent randomly to members enrolled in training. If a user clicks an email link or opens an attachment, they are harmlessly routed to a landing page informing them of the mistake they made and then enrolls them in remedial training. Currently we have extended this training to partner organizations that we provide email services.

Incidence Response

Last year we participated in a joint cybersecurity incident response tabletop exercise (TTx) with Warren County Emergency Management. From this we learned that while we may be a more mature organization as compared to our peers, we still have a lot to accomplish. Currently we are in the process of developing robust cyber incident response playbooks and scheduling additional TTx's that run through a gambit of scenarios.
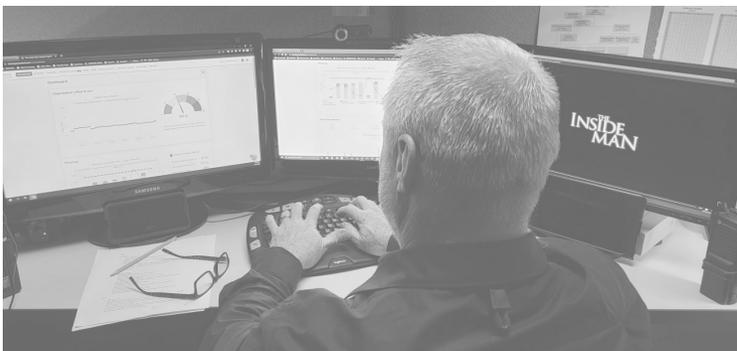
Maintenance Awareness

Status.io, which is a System Availability Tool. This was in direct response to agencies requesting a way to check the status of a Telecom system they use. Before this, our team members manually sent out Outage and Maintenance emails with PDF attachments and varying recipient groups. Status.io tightens up the consistency and formatting of our outreach.

Noticeable changes:

- The sender is always TelecomStatus@wcpsn.net
- Targeted communication—only persons and emails listed on your Department Authorization Form (DAF) get notified for systems with a noted liaison. If you did not provide an 'all staff' outage notification email, someone listed on your DAF will need to forward any maintenance or incident notices to staff.
- A 24/7/365 status page shows the health of 40+ Telecom systems. Curious if something is down or being worked on? Check http://status.wcpsn.net.
- Maintenance History—at the bottom of the status page, you can click 'History' to see past maintenances and outages with timestamped progress / discovery updates.
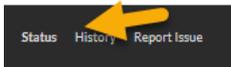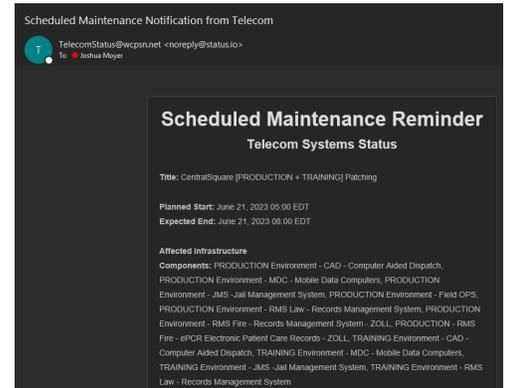
- Want a [image] calendar view? Add this iCAL address: webcal://status.wcpsn.net/pages/5fc1120ee54e8205402c1091/calendar/all.ics

Partnerships

Telecom is a cradle-to-grave Technology Advisor for the (3) legs of the Warren County Department of Emergency Services.

Emergency Communications Center Organized by FEMA, IPAWS is the Nation's alert and warning infrastructure. It provides an effective way to reach and warn the public about emergencies. IPAWS is used to send notifications for three alert categories– Presidential, AMBER, and Imminent Threat.

Emergency Management Agency Telecom has assisted EMA with setting up email distribution groups, training for Microsoft 365 products, team member headshots, and more.

Emergency Operations Center (2) 800MHz radio stations to communicate with the State in the event of an EOC activation and for regional communications. Telephones are directly connected to the 911 system. In the event of a widespread storm, need for extra hands, or social distancing, EmergencyServices can ship non-emergency calls to personnel in the EOC for call-handling with the simple push of a button on their 911 console.

Warren County Facilities Management and Telecom partnered on the construction of the new Jail plus maintenance of tower sites and various building cabling. They were especially helpful during a 9-1-1 disaster recovery equipment move to ensure electric stayed on and we had extra hands if needed!

Warren County Sheriff's Office has been an integral tester and early adopter of our Reporting Warehouse, CentralSquare CrimeView Analytics, and has always been present for ongoing #ProjectTriTech needs. Specifically, Brian Payne, Nick Marconi, Katy Farmer, and Bill Kampman were crucial 2021 partners!

City of Lebanon Division of Fire Telecom gave CAD Browser access to Lebanon so they can view Warren County-Dispatched runs and improve interoperability. In return, Lebanon Fire gave Analyst Josh Moyer a dashboard view of their First Arriving product to demo it for potential countywide usage. The goal is to eventually get a monitor setup in dispatch to display this dashboard feed from Lebanon.

State of OHIO MARCS Our Tier4 partnership provides our users with better portable coverage and expanded statewide capabilities. Plugging into the State saves our tax payers roughly $250,000 per year in maintenance cost and we have a direct line to the MARCS 24/7 Help Desk.

Warren County Information Technology acts as webmaster for the Telecom website.

Committees & Associations: Telecom is active in Communications Work Group, Warren County Police Chiefs, Warren County Fire Chiefs, and the Emergency Communications Board. Our Community Manager is Recording Secretary for three of these groups; helping Telecom stay at the forefront of meeting needs, adjusting technologies to fit their strategic missions, and maintain relationships with our customers.

Engraving: of accountability tags, incident status boards, plaques, and miscellaneous signs saves partners (and taxpayers) thousands of dollars per year by not having to pay private companies. 2021 recipients: Armco Park, City of Franklin Fire, Clearcreek Fire District, Clinton Warren Joint Fire, Deerfield Twp Fire, Franklin Twp Fire, Hamilton Twp Fire, Lebanon Fire, Massie Twp Fire, Pam Warner, Salem-Morrow Fire, Turtlecreek Twp Fire, Union Twp Fire, Warren County Parks, Warren County Technical Rescue, Wayne Twp Fire, Warren County Health District.

Engraving	2022
Accountability Tags	1890
Passports	12
Other	11
Total	1913

Going Above & Beyond

Bene-FIT Fair Each fall, our Support Services Team spearheads a raffle basket. This year's theme was "The Pampered Pup" with a many dog toys, grooming supplies and treats—all to make your pup feel very "pampered"! Along with the other participating departments, we helped raise $4,116.00. Half of the proceeds went to South Lebanon Food Pantry and the other half to Children Services for their Christmas Program for kids in care.

TCMC Committee In 2022, Telecom formed the Telecom Morale Committee. This committee is instrumental in planning events such as Summer picnics, Fall events, retirements, etc. We also engage in many community needs, such as small fundraisers to "give back". Team members engage in monthly donations by wearing their favorite sports shirt on "Jersey day". Money raised, over the course of a year, goes to a "foundation" of choice and money collected will to that charity every July.

Christmas Child Sponsorship
Led by Task Unit Alpha, Telecom joined Children's Services again to sponsor a 3 year old little girl. Team telecom raised nearly $300 and collected little girl gifts. This little girl received so many wonderful toys and clothes to ensure that she had a wonderful Christmas.

Annual Team Photo | 2022

Community Management: *Morale & Media*

#TCKudos is our morale program. In 2022, 17 kudos were written, recognizing above-and-beyond efforts by partners, colleagues, and Telecom team members! You can submit a #TCKudos for one of our team members anytime from our website.
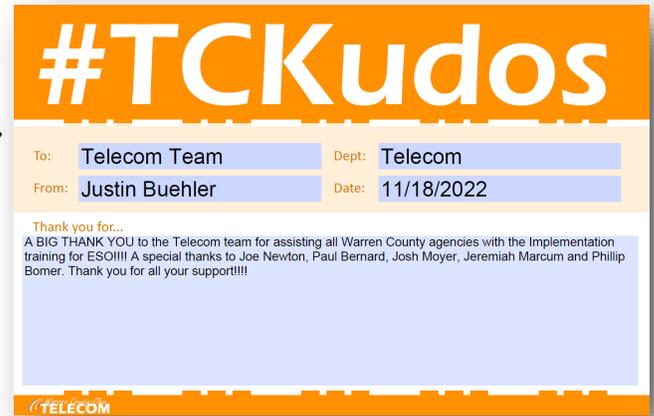
#TCChallengeCoin

Truly a team effort, our cache of challenge coins was 100% funded by team member donations. Coins are presented to colleagues and partners who meet one or more of Telecom's Core Values: *Collaboration, Continuous Improvement, Innovation, People, Service, and Transparency*. 2021 recipients included Garage's Andy Russell, CentralSquare's Ashley Durnan, Ohio Dept of Public Safety's Thomas Gwinn, and parents of the late Keith Fudge, Emergency Services Dispatcher.

SOCIAL MEDIA AND YOUTUBE CHANNEL:

Social Media Telecom has many avenues of keeping up and staying connected with what we are doing, education opportunities, announcements and what we are staying "involved" in.

Community Management: *Training*

Telecom has offered training since 2006 when our first training specialist was hired. Paul Bernard, Systems Manager, coordinates training for our broad audience of partners including county coworkers, schools, public safety, and state/federal agencies. Online training videos have been available since 2011 from our YouTube channel and website. Group or 1-on-1 trainings are conducted during regular hours and in the evening. In partnership with Emergency
Services, Telecom takes trainees on a tour of the Warren County Communications Center to see radio, 9-1-1, paging, auto-toning, CAD, and mapping in action! Telecom team members lead the training effort when available, to speak on their product or system's behalf.

New Chief Orientation: we offer a holistic onboarding including sitting with Subject Matter Experts (SMEs), deep diving into a partner's system setups, back room tours, discipline-specific slide decks, and more.

New Hire Onboarding: We strive to 'spin up' new team members in an orderly fashion including first-30-day mandatory reading, meeting with each task unit, radio & phone training, a deep dive into our communication and file management tools, etc.

2022 # OF PERSONS TRAINED BY AGENCY

- Mason Fire, 2
- Wayne Twp Fire, 12
- Sherriff's Office, 9
- Carlisle PD, 1
- Deerfield Fire, 16
- Law Enforcement Agencies, 8
- Mason PD, 1
- Dog Wardens Office, 4
- Juvenile Probation, 2
- Hamilton Twp Fire, 1
- Franklin Fire, 23
- Fire/EMS Departments, 164
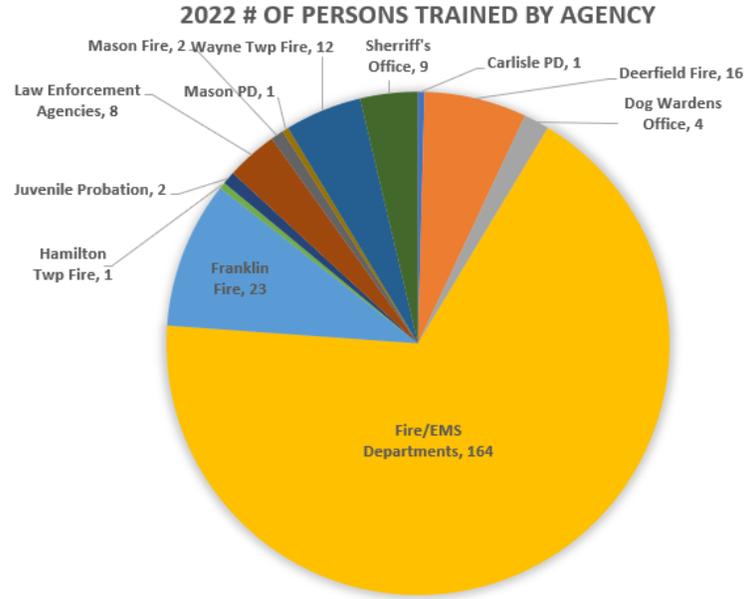
Paul Bernard Educating LHS on Student Government day.

Telecom attending Cybersecurity Training

Unit Leaders attending Ohio Region EC Cybersecurity Training
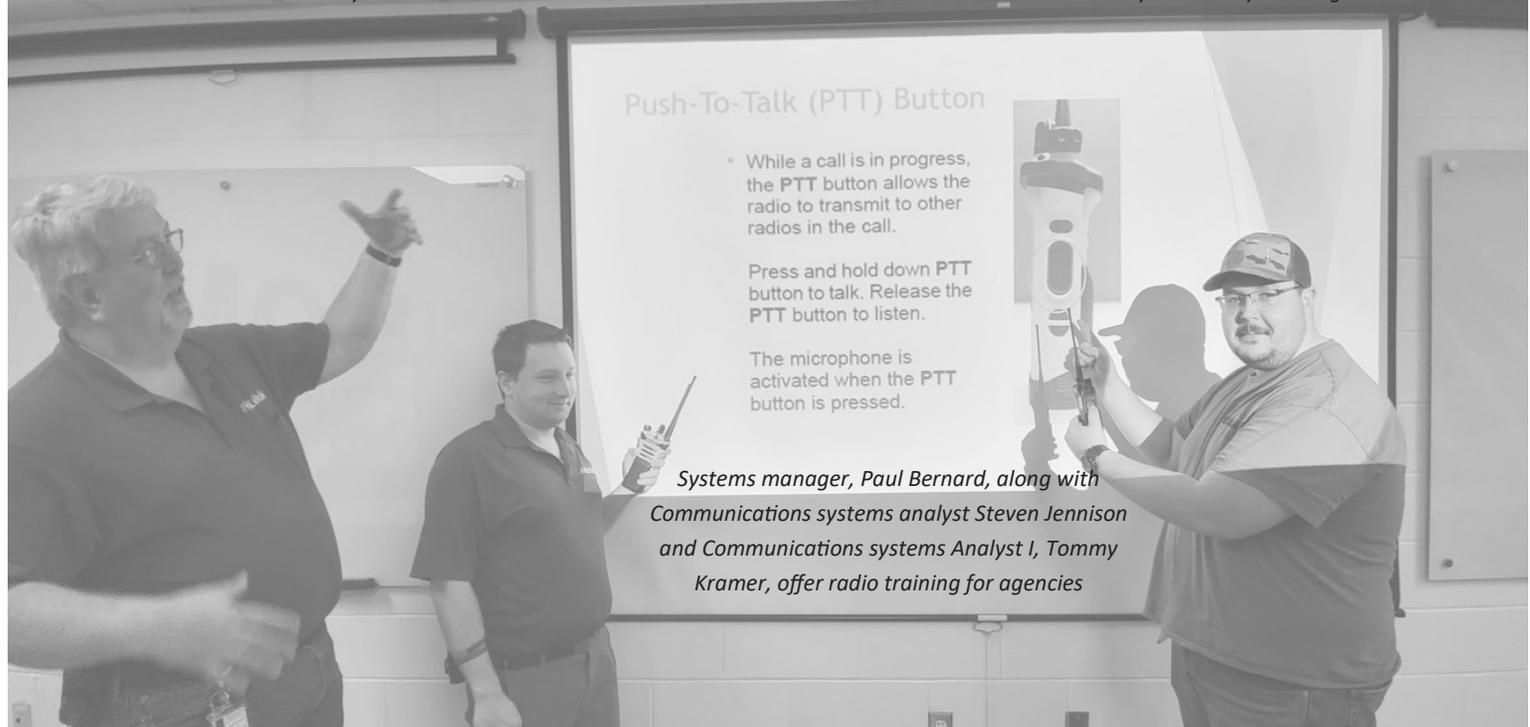
Systems manager, Paul Bernard, along with Communications systems analyst Steven Jennison and Communications systems Analyst I, Tommy Kramer, offer radio training for agencies

Community Management: Reports

This is the 12th consecutive **Annual Report.** This year, it was produced by the new Community Manager Lisa Hicks, in cooperation with the Telecom Team, focusing on an illustrative magazine-style layout.

Our Partner Report is a quick and easy way to get the latest Telecom updates straight to our partner's inbox each month. A supplement to our newsletter, sometimes containing secure content, it outlines key points in hopes of leading to deeper conversation with liaisons and essential personnel from our partners and agencies. Released on the last Wednesday of each month, partners have a jumpstart on the coming month and what's on our radar for everything from CAD and radio to 9-1-1 and phones. Key points of this document are shared at both the Police and Fire Chiefs meeting each month.
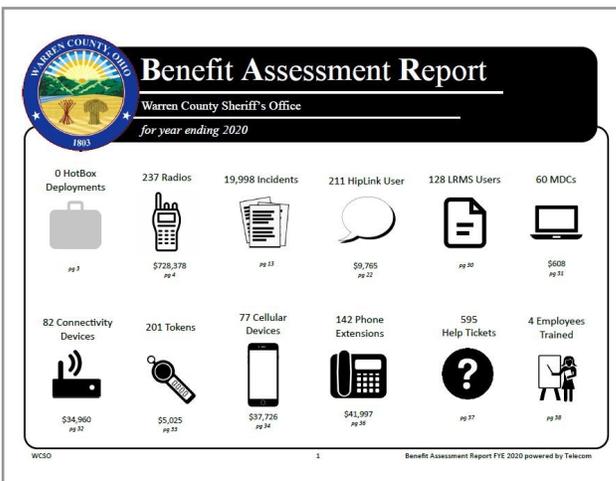
BAR + SPUR Telecom released our 4th annual Benefit Assessment Report (BAR) to each police and fire/EMS agency in **2022**. It outlined their rosters and inventories for radios, pagers, tokens, MDCs, Hiplink recipients, training, and more. It also attached financial investment where applicable to help agencies see the value of their provided services plus a break-down of Commissioner-funded versus Agency-funded components. Chiefs were asked to review and report back any needed changes so that Telecom's records could be more precise.

We also provided a (SPUR) Services & Product Utilization Report to the Board of County Commissioners. It takes BAR data a step farther, compiling it by community (e.g. Mason Fire, Police, Courts, Public Works all together as one City of Mason report). This allows the BOCC to see what they provide an entire community, via Telecom.

Community Management: *Details*

(DAF) Department Authorization Form

In March, we rebranded the Agency Authorization Form and expanded the audience to all Telecom partners. Upon feedback that we were oversharing or reaching the wrong people, this new form now:

- Allows our partners to designate persons with authority over their department staff and equipment changes.
- Ensures we send targeted communications only to a department head's designated liaisons… blank roles are left unfilled.
- Confirms who is authorized to modify personnel and equipment.
- Lets a partner communicate which systems/services they don't want notified for or involved in.
- Feeds our Status.io subscriber list for maintenance notifications.

New WCPSN User Form

In May, we rebranded the PAMR Form (Personnel Account Maintenance Request) to the New WCPSN User Form. With an ever-increasing list of partners, this form now includes Warren County Departments who need access to our systems and services, in addition to the police & fire sections we've always had.

Want to learn more?

www.WarrenCountyTelecom.com