Warren County·Ohio
TELECOM

Annual Report 2021

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Contents

From Director Kindell

The close of 2021 cast glimmers of light from the end of a 15-year tunnel. We are reaching a major milestone in Telecom with the Board of County Commissioners approving funding to upgrade the public safety network's remaining legacy system... Fire Records Management.

In 2006, every system was end-of-life and end-of-support with many vendors out of business! Today, every major system and subsystem has been replaced, upgraded, or soon will be in 2022! Telecom kept those legacy systems running until we were able to budget, bid, and replace them. Nearly all lacked redundancy and backups. They were single purpose dedicated systems and too costly to have a second system laying around. As we upgraded each one, we added backup capabilities and spare systems in the event of an outage or need to failover. This has equated to less down time and better customer service for our citizens and public safety partners. With maturity of our systems and maintenance, we can automatically redirect in the event of a failure without service interruption.

All of Telecom's new systems are server-based and upgradable… instead of the old "forklift upgrade" where the entire system was put in a dumpster. Our new systems can often move from an old to new version with a software update. However, this new methodology for upgrading brings with it its own set of problems. All systems now utilize Microsoft Windows Server, requiring constant patching and security monitoring. Whereas the old, dedicated hardware system could not be upgraded, they also were very unlikely to be hacked. The new systems require a continuous stream of updates for the servers they run on, more memory, more storage, more processing power, and more care and feeding. Having multiple systems also makes it more difficult to troubleshoot and isolate problems.

Like previous years, 2021 was busy, with our amazing team performing all the system updates plus many critical security updates!
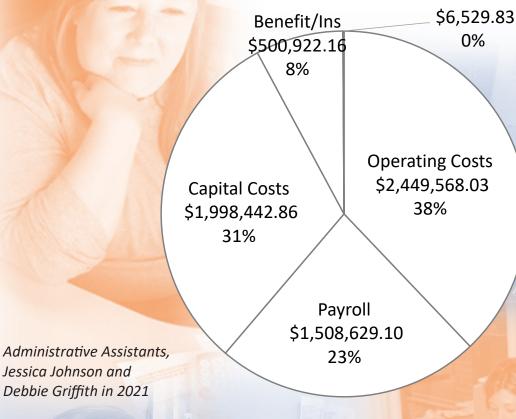
Some of our upgraded systems include: radio, telephone, paging, 9-1-1, Computer-Aided Dispatch, Law Records Management, Electronic Patient Care Reporting, Mobile Data, Microwave Network, Central Data Center UPS Power, and more. The speed and tempo of Telecom has been fast and furious with little reprieve between projects.

serving Warren County since 1989

Financials

2021 EXPENDITURES

Pie chart:
- Other $6,529.83 — 0%
- Benefit/Ins $500,922.16 — 8%
- Operating Costs $2,449,568.03 — 38%
- Capital Costs $1,998,442.86 — 31%
- Payroll $1,508,629.10 — 23%
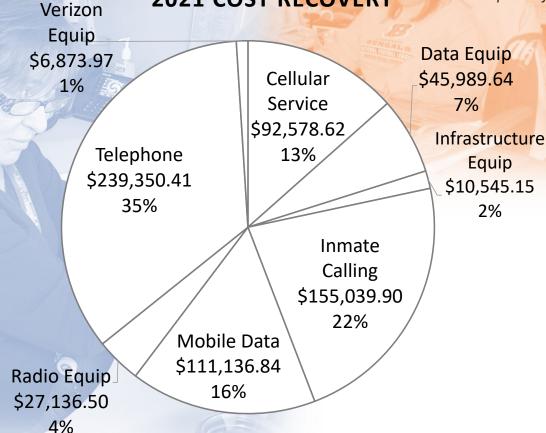
Administrative Assistants, Jessica Johnson and Debbie Griffith in 2021

These two women have been crunching numbers and serving Telecom since 2003 & 2005 when monitors were heavier than rocks yet smaller than a piece of paper.

2021 COST RECOVERY

Pie chart:
- Verizon Equip $6,873.97 — 1%
- Cellular Service $92,578.62 — 13%
- Data Equip $45,989.64 — 7%
- Infrastructure Equip $10,545.15 — 2%
- Telephone $239,350.41 — 35%
- Inmate Calling $155,039.90 — 22%
- Mobile Data $111,136.84 — 16%
- Radio Equip $27,136.50 — 4%

THE TELECOM CREED

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, Gary Hardwick, Dustin Flint, Jeff Cepin, Joseph Newton, Garrett Wilson, Jimmy Hollin, Allison Lyons, 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, Matt Ervin, Alex Mokrycki, Glenn McKeehan

Telecom Excellence

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

2020 Winner: Joshua Moyer was nominated by Allison Lyons & Jeff Cepin who surprised him at home due to COVID telework guidelines. The rest of Telecom joined virtually!

2021 Winner: Joseph Newton was nominated by Gary Estes, Joshua Moyer, and Matt Ervin then awarded at our annual Christmas luncheon. A visit from his wife was the perfect surprise!

(honorable mentions: Jessica Johnson, Rhonda Bernard, Philip Bomer)

Retirement

Radio Systems Supervisor Glenn McKeehan started at Telecom part-time while working full-time at GE. An amateur radio friend and customer of Paul Kindell and Dick Elliott, the duo knew just who to call when they were ready to erect several towers and manage the countywide radio system. Over the course of 25 years, Glenn solidified his role in the Telecom family as our tower climber, perfectly level hanger, radio database manager, diet pop top saver, and lunch bunch chauffer. Special thanks to Candace Miller, Commissioners' Aide for presenting Glenn with his proclamation, declaring September 24, 2021 as Glenn McKeehan day in Warren County.

New Team Members

William Cornett | Cyber Security Analyst
Alex Mokrycki | Communications Systems Analyst
Matt Ervin | Infrastructure Systems Analyst
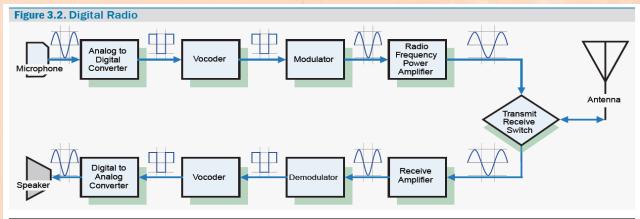*left 12/31 for position with Engineer's Office*

Radio System

Figure 3.2. Digital Radio

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

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

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 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. In December, we allowed Clermont County talkgroups to roam onto our system as they replaced a tower site.

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.

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.

674 voice pagers

2,075 radios

25 radio repairs

192 aligned radios

171 alias changes

24 modified templates

31 new templates

520 maintained templates

6 Hot Box deployments

431 programmed radios

4.9 million push-to-talks

8.6 seconds average call time

594 days cumulative talk time

8.6% 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.
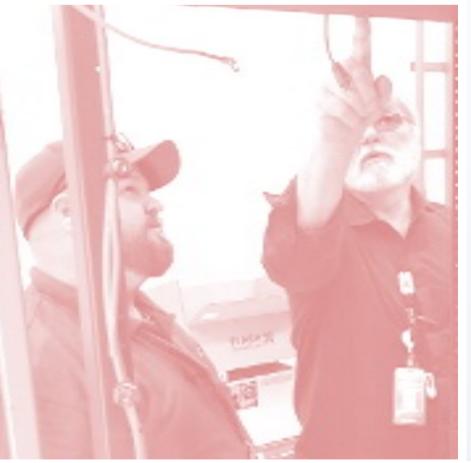
Radio System

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. With our Community Manager being the primary trainer for all things radio since 2011.

Other team members are happy to showcase their knowledge like Communications Systems Manager Gary Hardwick who enjoys teaching antenna theory and repeater systems 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.

Tower Site Maintenance

You drive right by them… our (10) towers. Most known for offering radio system coverage to our 2,200 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.

In August, Snider Tower in Deerfield Twp, got a face lift thanks to a 3-person climbing crew! Preventative paint jobs help avoid rust and premature degradation.

Our Role in the New WCSO Jail

According to Infrastructure Systems Analyst, Jimmy Hollin

- Installed the Telecom network switch.
- Installed two Viking door phones with Matt for front and back door entrance for after hours.
- Installed two Eaton PDU's for switch and black box fiber to ethernet converters.
- William and I helped on the Saturday morning that they moved for a few hours.
- 50 pairs of copper from Telecom to jail.
- 48 fiber from 406 Justice to jail.
- 96 fiber from 500 Justice to jail.
- Verizon spider cloud (cell phone service).
- New inmate phone system grew from 24 to 64.
- Escorted and checked on vendors.

According to Communications Systems Supervisor, Corey Burton

Our radio team developed an Incident Communications Plan (ICS 205) for the transition between buildings. It outlined which talkgroups would be used to maintain daily operation communications, coordinate inmate transfers, and the switch between repeaters. For the first time, Corrections Officers have a trunked talkgroup that operates on the county system. Until now, they primarily relied on a channel dependent on a rooftop repeater and a conventional simplex.

Corrections Officer	
1	JAIL
2	Jail Dir
3	83 JAIL BU
4	JAIL
5	JAIL
6	JAIL
7	JAIL
8	JAIL
9	JAIL
10	JAIL
11	JAIL
12	JAIL
13	JAIL
14	83 JAIL BU
15	Jail Dir
16	JAIL

According to our Community Manager, Allison Lyons

Commissioners' Aide Candace Miller reserved Lyons to photograph the ribbon cutting as she frequently photographs county events and causes (Police Memorial, 9/11 Memorial, State of the County, Elected Official & Department headshots), so this was a fun event to capture & support!

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.
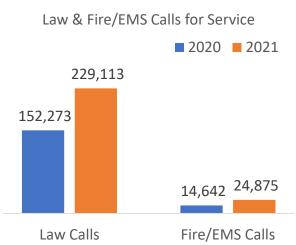
Caller Location Query (CLQ) In 2021, Application Analyst Moyer and Telecom Team members worked with Central Square and Emergency Services to implement a new tool for the Dispatchers to use when trying to locate a caller. CLQ allows the ECC to send a message to a cellphone number that will allow the caller to grant the ECC permission to see their location. The ECC will get a message in CAD when there is a new location for the caller with mapping and incident creating capabilities. All of this can be done without the need of having an open line with that cell phone.
Did you know that within 48 hours of implementation, the ECC used CLQ to help locate someone?

22 Workstations receive quarterly cleanings. Two Technology Integration Centers are located in our basement with all the programs available in the ECC in case Emergency Communications Operators need to evacuate their space. We are considering adding two more TICs so that all (4) primary radio talkgroups can be maintained from this space in an emergency. Currently, two Telecom team members' desks have Dispatcher setups should ES need to work there but this would displace our staff. To achieve social distancing in the Comm Center, dispatchers have periodically inhabited the TICs since COVID-19 began. We added a larger monitor to each workstation in the ECC to make it easier for the dispatchers to view the map that is so crucial to the Central Square Enterprise CAD System.

Law & Fire/EMS Calls for Service

■ 2020 ■ 2021

	Law Calls	Fire/EMS Calls
2020	152,273	14,642
2021	229,113	24,875

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. In the late 80s, Dispatch's original method of call taking was writing everything on cards and log sheets and referring to a large map book. The introduction of CAD provided a database of addresses and an electronic repository of all calls for service. Eventually, mapping was integrated cluing a dispatcher into incident location and agency with jurisdiction. 2021 was our first full year on CentralSquare Enterprise CAD, full of system tweaks and key learnings, already receiving its first upgrade on 4/15/2021. In March, we dismantled/repurposed hardware from our previous Motorola Premier CAD (PCAD). We made sure all data was converted to the new product, maintained CAD DSS abilities, and the Prosecutor's Office was consulted to ensure they had any needed case-related data.

CAD-to-CAD with Neighboring Counties and Communities In Q4, we began efforts with Hamilton County Communications Center. CAD-to-CAD should reduce response times, allowing us to share incident and vehicle information with other dispatch centers, while allowing our PSAP to pull their units into our calls without the need of contacting their dispatch center.

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.

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. HipLink is currently a free service to our partners, paid for by the Board of County Commissioners. At year's end, we had 1,232 receivers.

> Thanks to our FREE EMAG (Enterprise Messaging Access Gateway) from VZW, *our HipLink messages hit Verizon in under 1 second*, ready to be shipped to our partners.

Alerting + Toning

- Voice Paging: Telecom purchases and provides fire pagers to Warren County-dispatched agencies as outlined in our Radio Distribution Policy. Radio consoles in the WC Emergency Communications Center generate a two-tone sequential tone to activate the voice pagers and house systems of the proper agency and play the dispatcher's voice with relevant incident information. They also open up for the countywide all-call "long B" tone. To expedite mutual aid (early notification), we provide Warren County tones for outside agencies' pagers who request them. In 2021, we added several outer county agencies to that early notification list. *agency also has Warren County tones   +receives tones but not pages

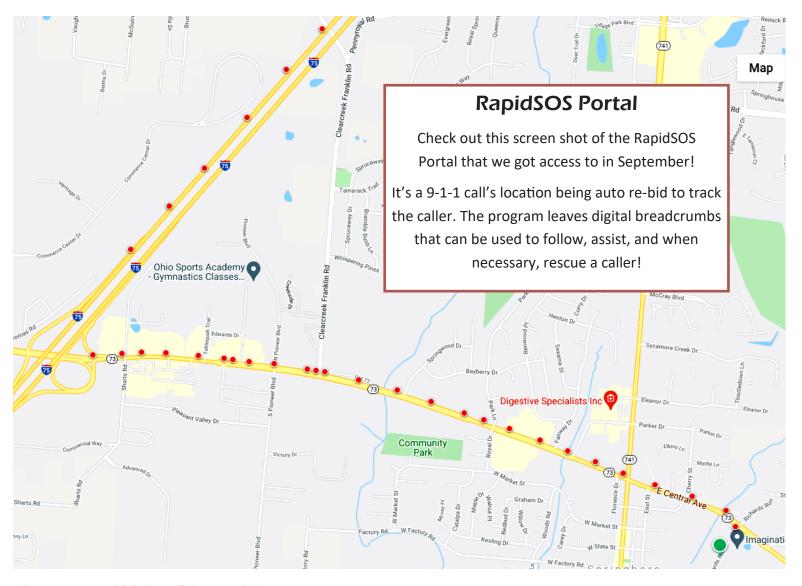|			
Bellbrook	*Liberty Twp	+Sharonville	Wayne Twp, Clermont Co
*Clinton-Warren JFD	*Loveland-Symmes	Spring Valley Twp	*West Chester Twp
Chester Twp	Madison Twp	Sugarcreek Twp	
Fairfield Twp	Miami Valley Fire District	+Sycamore Twp	
*Goshen Twp	*Monroe	Washington Twp	

- Station Alerting: A pager built into the fire station receives tones from the ECC. Telecom maintains an accurate paging database which the CAD system relies on to automatically encode the tones. Dispatchers can also manually alert a station. Telecom ensures triple redundancy with ECC consoles, backup system, and MIP 5000.

Priority Dispatch ProQA

Priority Dispatch ProQA is a nationally recognized tool used by dispatchers to consistently ask questions based on the caller's emergency. Only Fire (EFD) and Medical (EMD) use this service. Telecom's role is maintaining the backend servers on which ProQA resides. In late August, Cincinnati ECC's Bill Vedra and team visited the Warren County ECC and Telecom to primarily discuss ProQA utilization. Warren County has been using this key questioning / pre-arrival instruction EMD & EFD tools for several years at the request of the Warren County Fire Chiefs. What came out of the meeting was great discussion on many topics that impact telecommunications and emergency communications centers. A fire has been rekindled to collaborate more and help our departments be the best they can be.

Mapping

Mapping Telecom receives items such as parcels, subdivisions, building footprints, and updated city boundaries. We then tighten it up for the purpose of public safety response needs to create the Dispatcher-facing map. Telecom maintains the source map used by CAD which directs the program to the appropriate responding agencies, aids in address verification, and is customized by agency and beat/response region. Sebastianelli added more than 14,000 address points to the map in 2021 bringing the total to 116,530. He also facilitated 17 map uploads.

PSAP/9-1-1

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.
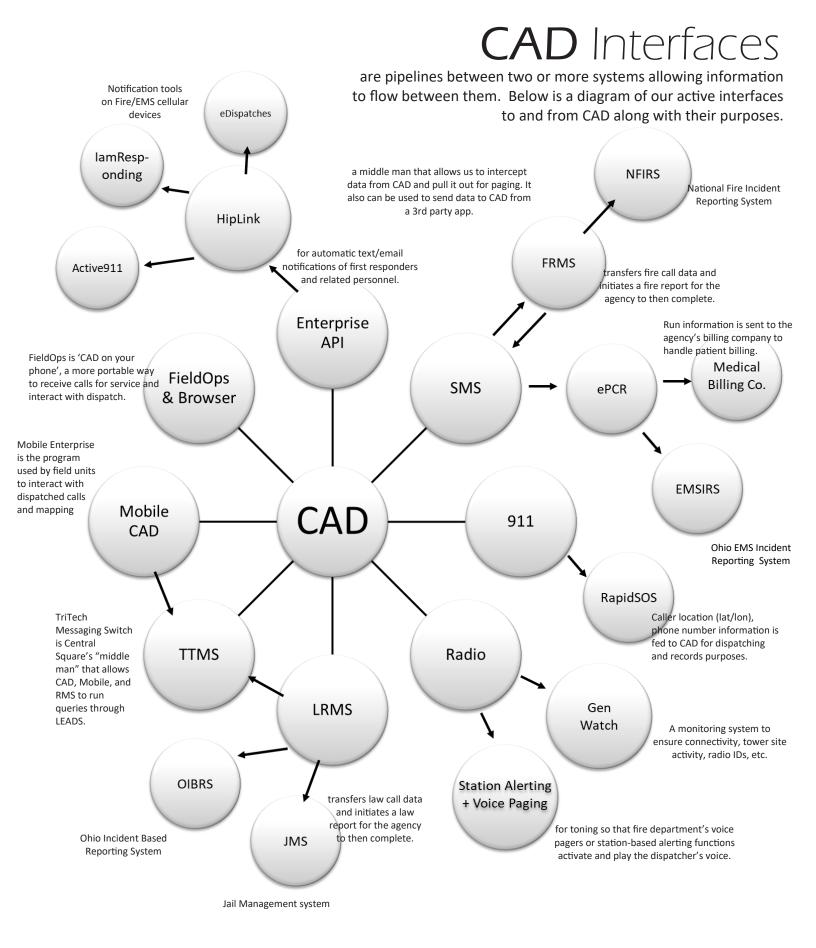
Dispatch Center Technology

RapidSOS Portal

Check out this screen shot of the RapidSOS Portal that we got access to in September!

It's a 9-1-1 call's location being auto re-bid to track the caller. The program leaves digital breadcrumbs that can be used to follow, assist, and when necessary, rescue a caller!

Automated Voice Dispatching

In September, Telecom & Emergency Services hosted several vendors at the request of the Warren County Fire Chiefs. Included were Locution, US Digital Designs, Phoenix G2, and Purvis. Automated Voice Dispatching offers consistent voice tones and annunciations over the air, while the station alerting component will simultaneously announce a message over multiple talkgroups and house systems… drastically speeding up responses and reducing radio air time. In Q4, it was decided to postpone progress on this effort as we shifted attention to ensuring auto-toning was rock solid before adding another layer to the Emergency Communications Center.

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.

218 DPRs submitted in 2021

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 along with their purposes.

Notification tools on Fire/EMS cellular devices

eDispatches

IamResp-onding

HipLink

Active911

a middle man that allows us to intercept data from CAD and pull it out for paging. It also can be used to send data to CAD from a 3rd party app.

NFIRS

National Fire Incident Reporting System

FRMS

transfers fire call data and initiates a fire report for the agency to then complete.

for automatic text/email notifications of first responders and related personnel.

Enterprise API

FieldOps is 'CAD on your phone', a more portable way to receive calls for service and interact with dispatch.

FieldOps & Browser

SMS

Run information is sent to the agency's billing company to handle patient billing.

ePCR

Medical Billing Co.

Mobile Enterprise is the program used by field units to interact with dispatched calls and mapping

CAD

EMSIRS

Mobile CAD

911

Ohio EMS Incident Reporting System

TriTech Messaging Switch is Central Square's "middle man" that allows CAD, Mobile, and RMS to run queries through LEADS.

TTMS

RapidSOS

Radio

Caller location (lat/lon), phone number information is fed to CAD for dispatching and records purposes.

LRMS

OIBRS

transfers law call data and initiates a law report for the agency to then complete.

JMS

Gen Watch

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

Station Alerting + Voice Paging

for toning so that fire department's voice pagers or station-based alerting functions activate and play the dispatcher's voice.

Ohio Incident Based Reporting System

Jail Management system

Mobile Systems for Field Users

Mobile Mapping Bridge Limits   In the summer, agencies requested a way to flag bridges with weight restrictions. We added a blue & white bridge icon on the map with an orange placard displaying the weight limit or height restriction. This icon becomes visible at a 5-mile zoom level and is a default feature of the "Fire CAD Map" or "Fire CAD Map with Aerial" themes.

Note: We can do this for bridges on private driveways or access roads if your department provides us with the location and weight restriction.

11 s = 11-ton limit for single axle
12 t = 12- ton limit for tandem axle

A bridge with height restriction of 17' 9"

29-ton limit for ev2 apparatus
42-ton limit for ev3 apparatus

Response Plans Adapt to Fit our Partner's Needs

Remember the May 22 unruly behavior at Kings Island that made the news? In swift response, Mason Police worked with Telecom and CAD's dynamic scheduling tool was configured to automatically toggle to a modified response plan for park hours then revert back to normal operations when the park was closed. *Warren County's Emergency Communications Center averaged 214 daily 9-1-1 calls in May 2021, with May 22nd hitting their highest daily call volume with 381 calls.* Additionally, Mason's KI Detail Supervisors began utilizing Field Ops, making CAD and incident updates accessible from their mobile phones. Whereas most officers lose CAD insight once they leave their vehicle & mobile data computer (MDC), Field Ops retained this insight as supervisors made their way through the park on foot.

Field Ops

CentralSquare's tagline for Field Ops is "*Connecting Your Comm Center and Field Operations Beyond the Vehicle*". In 2021, we purchased 30 licenses for agencies to BETA test the product, then meet with us to give vital feedback on the product and how we can deploy it. Some high participating agencies include Clearcreek Fire District, Deerfield Twp Fire Rescue, Warren County Sheriff's Office. By October, Springboro PD opted to purchase 30 licenses for their staff.

Page Only Units on both Law and Fire side for low priority incidents help reduce radio traffic for calls that need shipped from CAD but don't need typical officer interaction.

CAD Browser is a useful tool for users who don't need to interact with calls but want a dashboard view of what's happening in their agency. Some known users include Wayne Twp Fire, Deerfield Twp Fire, Hamilton Twp Fire, and Clearcreek Twp PD.

Enterprise Chat was called a 'must have' for our agencies who became accustomed to our previous mobile program. CentralSquare didn't have a chat tool in their product suite before engaging with Warren County but got to work designing one. The chat tool will be a separate website, likely accessible from a chat button that we will add to your Mobile Enterprise secondary toolbar. Users without Mobile Enterprise will simply visit the website and enter credentials to access the site.

Mobile Systems for Field Users

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, Deerfield Twp WCSO post, Franklin PD, Hamilton Twp PD, Harveysburg PD, Maineville PD, Mason PD, Morrow PD, South Lebanon WCSO Post, Springboro PD, Waynesville PD, Emergency Services, Telecom, and WCSO Lebanon post.

MiFis are Not Supported for Public Safety Use

On April 1, 2021, Telecom stopped supporting NEW cellular non-public safety grade, in-vehicle devices for MDCs in dispatched vehicles (MiFis). Combining the MiFi shortage, many newer devices being lesser quality than previous generations, and MiFis having issues with in-vehicle heat/swelling batteries, we felt this stance to be the safest and smartest choice. We will continue supporting existing devices in the fleet of dispatched units until they no longer work or become a support issue as determined by Telecom. Telecom will provide a list of updated requirements for computers, antennas, and connectivity soon.

352 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.

664 Two-Factor Tokens *(+9 from 2020)* 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.

Mapping
CAD is map-based, making the accuracy of address points crucial. Telecom combines source data from Warren County GIS, Google, and our own information into one public safety-centric map. In 2021, we began sharing our map data with the City of Franklin and the City of Lebanon so they could benefit from our detailed information. We continue to maintain maps suitable for use by Agencies in both PDF and print formats.

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 Supervisor Garrett Wilson pulling cables in the communications center.

❑ 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 5 year anniversary of our 9-1-1 System Cutover, during which we seamlessly transitioned systems with no interruption to our citizens or communications center.

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: Always the hands-on Director, Paul Kindell, working on the 911 system with our vendor.

9-1-1 Calls by PSAP

Lebanon, 7057 8%

Franklin, 7866 8%

Warren County, 77972 84%

Primary System Our standard mode of connectivity is fiber; but should that go down, microwave will continue 9-1-1 services for our citizens. Due to holiday vendor schedules, our 2021 server replacement and the Windows server operating system upgrade got pushed to Q1 2022.

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.

9-1-1 Coordinator Did you know Don Sebastianelli has been the county's 9-1-1 Coordinator for more than 30 years? Duties include confirming coverage areas with cellular providers, verifying address points, and ensuring the proper PSAP gets the initial 9-1-1 call. With his upcoming retirement, that responsibility is being passed along to Community Manager Allison Lyons.

Text-to-911
In February, Telecom upgraded the Text-to-911 cellular radios from 3G to 4G. Staying ahead of trends, we saw the phase out of 3G coming, and planned accordingly. 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 2021, 156 texts-to-911 were sent *(+57 from 2020)*
- 15 texts with Franklin Dispatch
- 20 texts with Lebanon Communications
- 121 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). In June, we got word from our 9-1-1 vendor of fiber work scheduled for a Thursday night / Friday morning. We proactively tested the 911 system ahead of that, running only on microwave to simulate the expected fiber outage. We made numerous test calls, running only on microwave, and once again after the fiber was restored. All tests went extremely well, strengthening our confidence in Warren County's 9-1-1 System.

Accounting + Administration

Kristy
Oeder
since December 2016

Jessica
Johnson
since August 2005

Debbie
Griffith
since March 2003

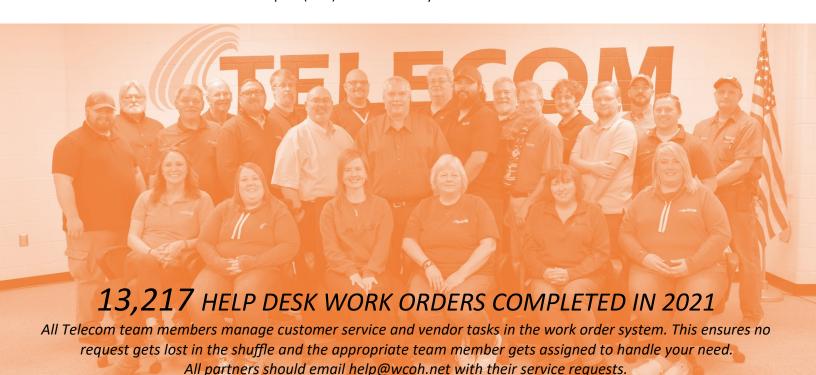**Kim**
McKinney
since October 2020

Our Administrative Unit ensures all bills get paid, mail goes out, equipment gets ordered, purchase orders get tracked (158 in 2021), 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, and the Warren County switchboard (513-695-1000) on behalf of all Warren County departments.

Recordkeeping Just Got Quicker! An exciting project this team accomplished in 2021 was procuring a new accounting software. It will have a Data Protection Plan and PACE Plan (Primary, Alternate, Contingent, Emergency) before going live with five goals:
1. Improve invoicing method,
2. Point of Sale to achieve real-time tracking of the accessories and equipment our partners purchase from us,
3. Manage all Telecom Inventory and assets in alignment with Ohio Revised Code standards,
4. Shared responsibility across all task units to enter invoice items—achieves redundancy and backups,
5. Feed our annual Benefit Assessment Report (BAR) more efficiently.

13,217 HELP DESK WORK ORDERS COMPLETED IN 2021
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

Use 695 when Calling Warren County

In the old days, we had (513) 261, (937) 425, (513) 925, and (513) 695 to reduce long distance when calling the government offices. We have since eliminated many prefixes to save confusion + money! **Today, (513) 695 is the number you should call when trying to reach Warren County offices.** It's designed to fail over automatically to our backup system in Indianapolis in the event of a cable cut, storm damage, or our provider's failure. We use different fiber companies for our connections to Cincinnati and Indy to keep the service robust. 695 is designed to handle over 200 simultaneous calls. (513) 925 is a backup in the unlikely event that (513) 695 goes down, only handling 46 simultaneous calls.

Mandatory 10-digit Dialing

On July 16, 2020, the FCC adopted an Order (FCC 20-100) approving 988 as the 3-digit abbreviated dialing code to reach the National Suicide Prevention Lifeline, starting July 16, 2022. For 988 to work in the Ohio 513 area code, 10-digit local dialing had to be implemented because they have 988 prefixes. All local calls in the entire 513 area code now need to be dialed using the area code + telephone number. All PSAP equipment should have been updated or reprogrammed to dial 10 digits.

Campus-wide Overhead Paging

Telecom maintains an overhead paging system across the Justice Drive government campus with the intent of alerting staff during emergency situations. Broken into zones, the system can notify particular levels of a building, entire buildings, or multiple buildings.

Your Old Phone Will Not Call 9-1-1 Soon!

source: State of Ohio 9-1-1 Program Office & State of Ohio Office of Information Technology

3G Cellular Devices/Networks are Phasing Out in 2022

- February: AT&T will discontinue service
- March-July: T-Mobile/Sprint will discontinue service
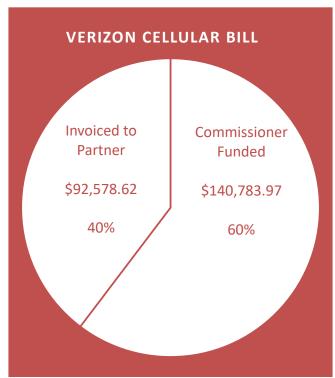- End of 2022: Verizon will discontinue service

As new technology progresses, old technology must sunset, as is the case for 3G in 2022. The above dates should remain unchanged because of large FCC penalties if schedules are not maintained. Concerns abound whether enough outreach has been made and the depth of the 3G sunset so Telecom is doing its part to spread the word after receiving additional information from the State. As stated in our October Telecom Matters newsletter, alternate arrangements need made for organizations that distribute old un-provisioned cell phones for calling 9-1-1 and for citizens who use home medical devices that connect with 3G rather than home Wi-Fi. Check out this easy-to-understand FCC Consumer Guide: https://www.fcc.gov/consumers/guides/plan-ahead-phase-out-3g-cellular-networks-and-service You are urged to reach out to your citizens, family, friends, and colleagues who might be affected by this. Follow-up questions from consumers should be directed to the carrier or manufacturer of their service/equipment.

Commissioners Met via Webex due to COVID Restrictions

For the first half of the year, the Board of County Commissioners relied on Webex video conferencing, facilitated by Telecom. After more than a year of virtual meetings, Telecom is able to discontinue our Webex subscription as doors reopen for in-person meetings.

7,784 switchboard calls were serviced in 2021!

Supporting Communications: Cellular

VERIZON CELLULAR BILL

Invoiced to Partner
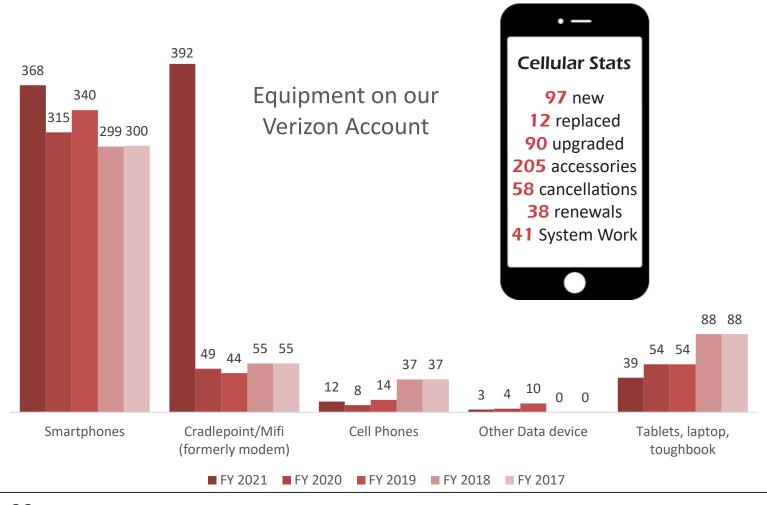
$92,578.62

40%

Commissioner Funded

$140,783.97

60%

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.

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

Invoiced to Partner: Abuse and Rape Crisis Shelter, Armco Park, Children's Services, Dog Warden, Emergency Management, Engineers, Health Department, Human Services, LEPC, Mary Haven, OhioMeansJobs, OMB Healthcare, Park Board, Planning Commission, Soil & Water, Solid Waste, Title Clerks, Title-Franklin, Water.

Equipment on our Verizon Account

	FY 2021	FY 2020	FY 2019	FY 2018	FY 2017
Smartphones	368	315	340	299	300
Cradlepoint/Mifi (formerly modem)	392	49	44	55	55
Cell Phones	12	8	14	37	37
Other Data device	3	4	10	0	0
Tablets, laptop, toughbook	39	54	54	88	88

Cellular Stats

97 new
12 replaced
90 upgraded
205 accessories
58 cancellations
38 renewals
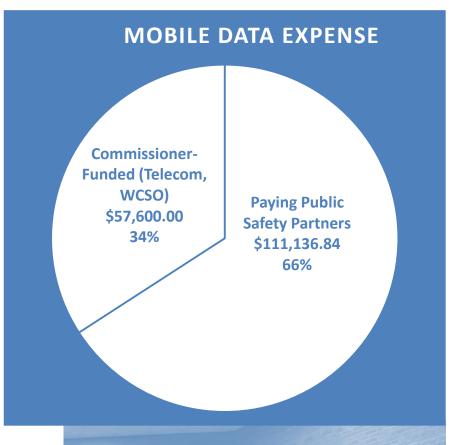**41** System Work

Supporting Communications: *Cellular*

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

In Q1, the Justice Drive campus received a Verizon upgrade for in-building coverage only, providing better signal strengths for 4G and LTE Voice. By installing 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: 406 Justice Dr, 416 East St, 500 Justice Dr, 520 Justice Dr, 822 Memorial Dr, 900 Memorial Dr

MOBILE DATA EXPENSE

Commissioner-Funded (Telecom, WCSO)
$57,600.00
34%

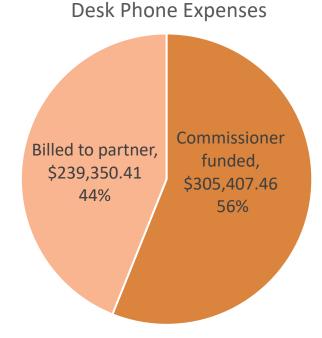Paying Public Safety Partners
$111,136.84
66%

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.

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!)

2021 saw a few more county departments migrate 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, Educational Services Center, Emergency Management, Engineers, Grants Administration, Health Department, Humane Association, Human Services, Law Library, LEPC, Village of Maineville, Mary Haven, Metro Housing, OhioMeansJobs, Open Options, Ohio State Patrol, Park Board, Planning Commission, Salem-Morrow Fire, Sewer, Soil & Water, Solid Waste, Title, 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 to 9-1-1 status. In 2021, the WC ECC fielded 108,660 admin calls with the most on June 19th (452 calls.)

Desk Phone Expenses

Billed to partner, $239,350.41 44%

Commissioner funded, $305,407.46 56%

1,356 phone users accessing

1,470 phone extensions *(+267 from 2020)* and

16 conference bridges with

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

1,561,978 phone calls *(+95,769 from 2020),* totaling

72,028 hours of traffic *(+1,436 from 2020)!*

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.

COVID

- Remote Work - Telecom continued to setup remote work from home phones although the majority of county coworkers have returned to office.
- The 695-SHOT Call Center - In January, Telecom assisted EMA and the Health Department in establishing the COVID-19 "695-SHOT" phone system. Telecom's Task Unit Bravo set up a phones and extension workgroup while our Community Manager created instruction sheets for call-takers. Last we heard, more than 1,200 citizens got assistance in scheduling their vaccine.

Records Management

In December 2021, Telecom received approval from the Board of County Commissioners to release an RFP for a new Fire & EMS Records Management System.

FRMS In the 1990s, a consultant studied the local fire services' technology and his recommendation was a consolidated countywide FRMS. The benefits would include cost-sharing, knowledge-sharing, assurance of NFIRS compliance, and eligibility for grant funding. Fire Records Management System is utilized by all Warren County-dispatched fire agencies. Telecom hosts the backend system in our Data Center while each fire department manages their own data and records, although in recent years, due to vendor failures, analyst Joseph Newton has become integral in helping fire agencies resolve product issues. One benefit of our existing FRMS is that it's tied into CAD, allowing information to flow out of CAD and into our agency's FRMS. This saves them data entry and increases data accuracy (especially incident times). In 2021, our fire partners became increasingly vocal, identifying several lacking features that Telecom agrees are shortcomings of the current product.

> In November, we upgraded both FRMS and ePCR environments, knowingly putting users on pen & paper for 12 hours during the cutover. BENEFIT: This brought crews up to the latest versions of EPCR(v6.6) and FRMS(v5.09) while allowing Telecom to move Zoll applications over to the more secure, and easier to access 'Gateway' which also houses RMS-FIRE Public Safety Desktops (PSDs.)

Newton opened 20 tickets with vendor, Zoll.

ePCR Electronic Patient Care Reporting is a sister product of FRMS. By sticking with one vendor, the flow of information between FRMS and ePCR should be more fluid and reliable. ePCR is utilized by all Warren County–dispatched EMS agencies. Not only does Telecom host the data but we have a dedicated analyst who works on behalf of our customers with the vendor, the state, and the billing company. He helps modify agencies' ePCR workflows and helps improve their Quality Assurance process (checking for mistakes before the report is sent to the State or billing company. ePCR has an annual licensing cost which is initially covered by Telecom before being cost recovered; each agency paying their portion based on number of utilized licenses.

> In 2021, Newton serviced 525 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.

On April 23, the Warren County Sheriff's Office joined Telecom and CentralSquare to discuss Warrant Entry issues with the goal of cleaning up fields and to ultimately create a customized combo query form that matches the WCSO's work flow and preferred order of fields. On July 27-29, InformRMS - SSRS Reporting Workshop provided an overview to the integration of the SSRS Report Manager tool and RMS Web.

In 2022 we will embark on Web 20.4, a newer version of RMS which looks promising and will allow users to report electronically to the state directly from the application. Ohio Incident-Based Reporting System (OIBRS) collects crime statistics and use of force data then reports those statistics to the federal government's National Incident-Based Reporting System, (NIBRS). The work to gain this functionality has been tedious, but we are close to our goal of reporting with a 3% or less error rate. Electronic submission of OH-1 Crash Reports will also be available, with each agency able to transmit the crash reports to the Department of Public Safety as soon as the report has passed validations. This will save money and time for everyone involved.

Citations has proved to be a little more cumbersome. With the assistance of WCSO's Lt. Brian Payne and Lt. Nick Marconi, the work continues with submissions. On our roadmap of process improvements, these submissions will eventually go to a State Warehouse, from where they can be downloaded by the courts, eliminating the need for duplicate entry for their dockets.

Rhonda is always looking for involvement from agency personnel, especially whoever is designated as the LRMS Liaison. If you want to become more involved, and can dedicate 8-12 hours a week on the new platform, please Rhonda.Bernard@wcoh.net.

On April 27-29, law enforcement and Telecom reps attended a virtual training for InformRMS Output Designer. When designing a report or form, the user specifies where to get the data, which data to get, and how the data will be displayed when users hit the Print button. Users learned how to create forms while using SQL Server Reporting Services (SSRS) and Report Builder 3.0. *Attendees: Clearcreek Twp PD Records Administrators Kristen Eggers & Savannah Highley, Mason Police Officers Justin Hoskins & Matt Kimbrell, Springboro PD Customer Service Managers Andrea Mosley & Jennifer Embleton, Hamilton Twp PD Records Administrator Amy Scheeler, and Telecom's Rhonda Bernard, Joseph Newton, Joshua Moyer, and Jeremiah Marcum.*

In 2021, Bernard serviced 864 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 216 users with access to 150 reports thanks to connections with 8 environments with more than 50Gb of data.

Top 10 Reports

Report Name	Times Ran
Alpha Roster	1381
Inmate History by Name	979
Court Report	720
Student Intervention Program	665
Charges Not Filed	497
Inmate History	470
Book Report by Date Range	363
Inmates booked sorted by Name	330
Inmates to Release sorted by Name	329
Inmate History by SSN or OLN	319

Top 10 users for 2021

User Name	QTY Reports Run
PSN\PR5898	467
PSN\wcc072	347
PSN\wcc065	296
PSN\SO5265	275
PSN\SO5365	258
PSN\SO5025	245
PSN\PR0155	239
PSN\SO1209	211
PSN\PR5812	184
PSN\wcc006	177

COVID-19 PPE Report

In February, Fire Chiefs, Fire Agency Administrators, and CAD SMEs were emailed a Technical Bulletin explaining the report and how to access it.

Monthly + Yearly Reports

Each month, for the last several years, Sebastianelli has generated radio & 911-Phone reports to an online retrieval site, linked on our website. CAD reports dropped from this process with the arrival of CentralSquare.

Don Sebastianelli
since January 1988

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.

In recent years, Joshua Moyer became secondary for this Area of Responsibility (AOR).

Joshua Moyer
since January 2017

In December, we transitioned primary AOR from Sebastianelli to Allison Lyons as Don approaches retirement. Joshua Moyer will remain secondary.

Lyons polled our users to see which reports they rely on, with a 2022 goal of migrating these manually-run reports over to our WCPSN Reporting Warehouse. If we achieve this, departments will be able to run the reports at any time instead of waiting for the turn of the month.

Allison Lyons
since February 2011

DR is ongoing with the goal of geo-diversely locating our essential systems.

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.

"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.

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 more than 19,652 differentials and 4,306 full.

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.

Data Systems Manager Jeff Cepin & Infrastructure Systems Manager Dustin Flint lead the two teams who most utilize the Data Center.

Cybersecurity

Cybersecurity was a hot topic in 2021 and Telecom was not surprised. Having been on the forefront of this growing need in local government, Telecom hired its first Cybersecurity Analyst in June. Our decision was further validated when Warren County chose Cybersecurity & Remote Work as their 2021 CORSA training topic for employees.

Telecom has partnered with an Ohio-based Security Operations Center (SOC) to compliment Telecom's in-house cybersecurity efforts. This vendor also provides IT Endpoint Detection and Response (EDR) services.

William Cornett
since June 2021

Vulnerability Management

As part of our on going and layered approach to cybersecurity, we have developed and maintain a robust vulnerability management program. What is vulnerability management? It is a process where a cybersecurity professional scans the network with a specialized application. This scanner looks for missing software patches, misconfigurations and unsupported software. Once a vulnerability is identified, it is evaluated for relevance and severity. If determined to be a vulnerability that poses a real risk to our public safety network, we then work out a solution. These scans are conducted on a regular basis in order to catch any new vulnerabilities being exploited by threat actors and to identify any new vulnerabilities introduced by deploying new equipment or software applications in to our environment.

EDR

Endpoint Detection and Response can detect threats that exist in your networking environment and then respond to them. EDR aims to target advanced threats maliciously engineered to get past primary defenses and infiltrate your 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:

− 188 Law Enforcement Department devices,
− 172 Fire/EMS Department devices,
− Warren County Emergency Services

In total, Warren County Telecom is monitoring and protecting over 625 computer workstation devices and 160 servers.

Cybersecurity Awareness Month
Do Your Part. #BeCyberSmart

Observed every October, since its original inception under leadership from the U.S. Dept of Homeland Security and the National Cyber Security Alliance, Cybersecurity Awareness Month has grown exponentially, reaching consumers, small and medium-sized businesses, corporations, educational institutions and young people across the nation. As an effort to educate all Telecom team members, our Cyber Security Analyst shared cybersecurity tips throughout the month and our Community Manager shared some with our social media followers.
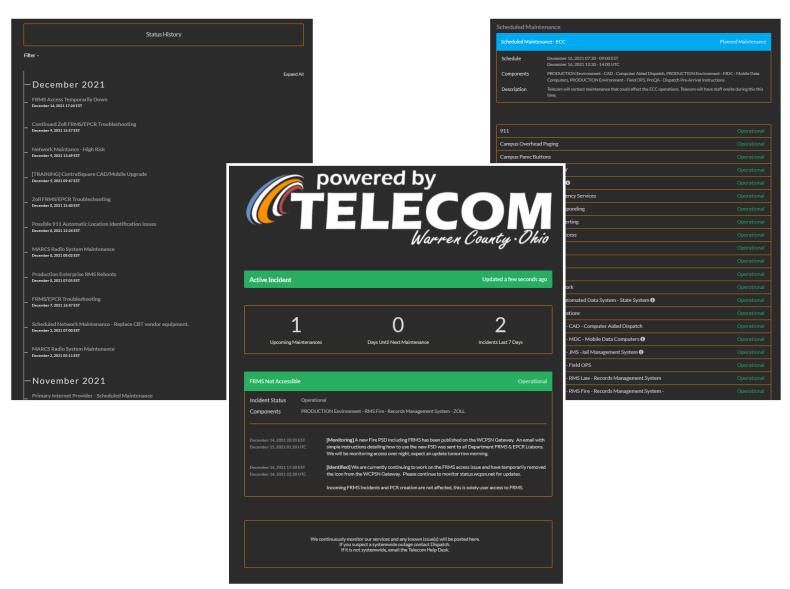
Maintenance Awareness

In May, we launched Status.io, a new Maintenance Awareness 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 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, Emergency Services 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	2021
Accountability tags	2178
Status Boards	0
Passports	105
Other	22
TOTAL	**2305**

Going Above & *Beyond*

Bene-FIT Fair Each fall, our Support Services Team spearheads a raffle basket. This year's theme was "Be Your Own Barista" with a custom-built coffee cart, Keurig machine, grinder, canisters, mugs, signs, and accessories. Along with the other participating departments, we helped raise a record breaking $6,390 for The Franklin Food Pantry and Children's Services Christmas for Foster Children Project.

Christmas Child Sponsorship
Led by Task Unit Alpha, Telecom joined Children's Services again to sponsor a 13-year old boy. He received 3 pairs of jeans, 5 long-sleeved shirts, 3 hoodies, 3 t-shirts, a PS4 controller & Spiderman game, a $25.00 PlayStation gift card, socks, and a pair of shoes.

20th Anniversary Warren County 9/11 Remembrance Ceremony
This year's remembrance ceremony marked twenty years since that fateful day. Our Community Manager has been helping plan or photograph the memorial since the effort began in 2011. This year, she joined committee members Robin Kiley (Stand2Serve.org), Candace Miller (Warren County Board of Commissioners), Arla Tannehill (Area Progress Council), Chief Steve Agenbroad (Clearcreek Fire District), and Deputy Chief Barry Riley (Warren County Sheriff's Office) to conduct 2 community events. On 9/10, a candlelight vigil was held with performances and readings by Lebanon and Kings students, followed by a 9/11 solemn remembrance ceremony with a ringing of the bell at various moments of significance.

Community Management: *Morale & Media*

#TCKudos is our morale program. In 2021, 18 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.

Telecom's First Director, Richard Elliott

The Telecom Story With 36 years of history and several retirements on the horizon, we were inspired by the Warren County Records & Archives Department's knack for preserving and celebrating history. We are curating "A Telecom Story" looking back at Telecom 1.0 under Dick Elliott's direction 1985-2006 and Telecom 2.0 under Paul Kindell's direction 2006-present. With interviews from team members current and past, and partners, we hope to preserve the memories of Telecom as we walk toward Telecom 3.0 next year. Check out the trailer on our YouTube Channel.

1,665 Followers

YouTube 373

Facebook 1,219

LinkedIn 73

#PoweredByTelecom

Due to loss of developer support, we fell off the app stores. Its future is unknown so if you found our app helpful and think it should be retained, notify Allison.Lyons@wcoh.net before May 1st.
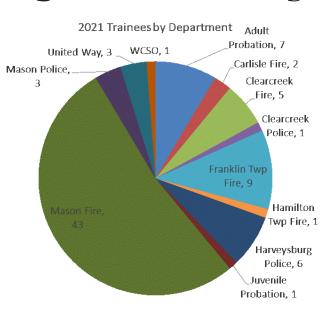
Community Management: *Training*

Telecom has offered training since 2006 when our first training specialist was hired. Our fourth training specialist turned Community Manager still 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! Several Telecom team members join 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.
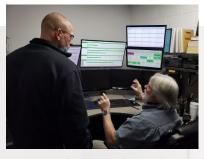
2021 Trainees by Department

- Adult Probation, 7
- WCSO, 1
- United Way, 3
- Mason Police, 3
- Carlisle Fire, 2
- Clearcreek Fire, 5
- Clearcreek Police, 1
- Franklin Twp Fire, 9
- Hamilton Twp Fire, 1
- Harveysburg Police, 6
- Juvenile Probation, 1
- Mason Fire, 43

Analyst Joshua Moyer explaining the backend of CAD to Clearcreek Fire District's newest EMS Officers

Analyst Joseph Newton conducting the FRMS / ePCR portion of Carlisle Fire Chief Orientation.
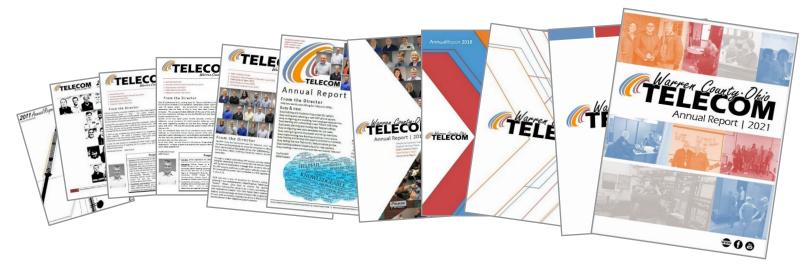

Supervisor Glenn McKeehan explaining the radio system's monitoring tools to Hamilton Twp Assistant Fire Chief Jason Jewett.

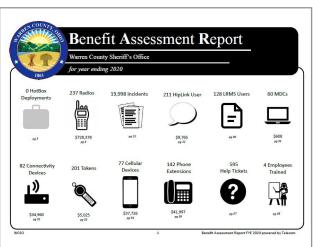*Community Manager Allison Lyons training two Community Corrections staff on their radio.*

Community Management: Reports

This is the 11th consecutive **Annual Report** produced by Community Manager Allison Lyons 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.

BAR + SPUR Telecom released our 2nd annual Benefit Assessment Report (BAR) to each police and fire/EMS agency in 2021. 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.
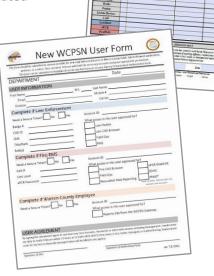
Community Management: Details

(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.

Virtual meetings became the norm even as COVID restrictions lifted, with our Training Room only hosting **54 events** and our Conference Room holding **7 meetings.**

Want to learn more?

www.WarrenCountyTelecom.com