



Dispatch Center Overview

Public Safety Communications System Assessment and Design

Broome County, New York

Report

June 28, 2012



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1 Overview

Broome County currently has an aging radio system and is in the process of complying with FCC-mandated narrowbanding. Broome County is in the process of reviewing its radio system status, operational needs and potential solutions to meet its current and future operational requirements. The evaluation process is broken into three parts, with Phase 1 of the process consisting of reviewing the current operations and base lining the current status. This report provides a baseline of the operations status, as well as the equipment status that supports the dispatch operations. In addition, the report also highlights areas of concern that are recommended to be reviewed to better understand the future user needs.



2 Current Dispatch Operations Review

2.1 User Groups

The Broome County communications system is currently used for county and local law enforcement, fire and EMS. The primary responsibility is for 9-1-1 call taking and dispatch of appropriate responders.

2.2 Dispatch System Features and Functions

2.2.1 Dispatch System – Main Center

The main dispatch center is located on the first floor of the public safety facility at Lt. Van Winkle Drive in Binghamton. The communications room has 17 positions. Several radio and CAD positions are also located at multiple other locations in the county.

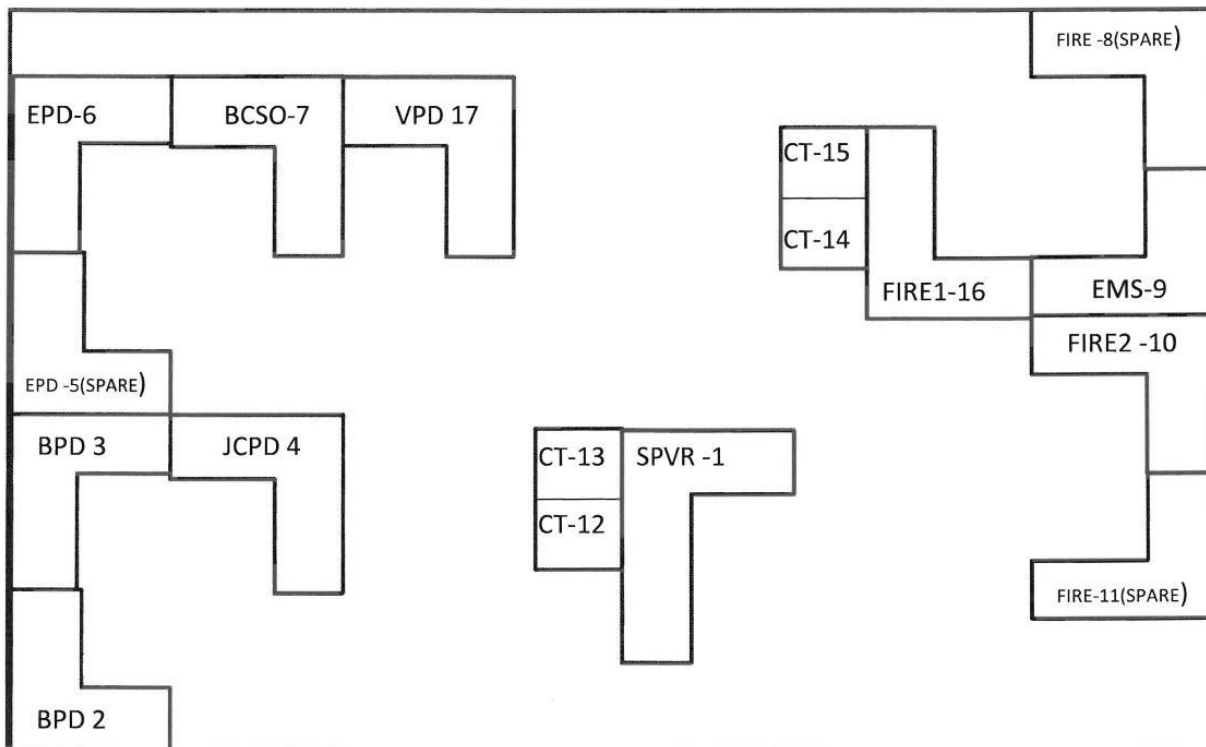


Figure 2-1: Dispatch Room Layout



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Each position is dedicated to a primary call taking/dispatch function.

1. Supervisor
2. Binghamton Police Department
3. Binghamton Police Department
4. Johnson City Police Department and Part-Time Law
5. Law – Spare
6. Endicott Police Department and Part-Time Law
7. County Law
8. Fire – Spare
9. EMS (backup for positions 10 and 16)
10. Binghamton and Johnson City Fire Departments
11. Fire – Spare
12. Call Taker
13. Call Taker
14. Call Taker
15. Call Taker
16. Low Band Fire (all other fire and EMS)
17. Vestal Police Department



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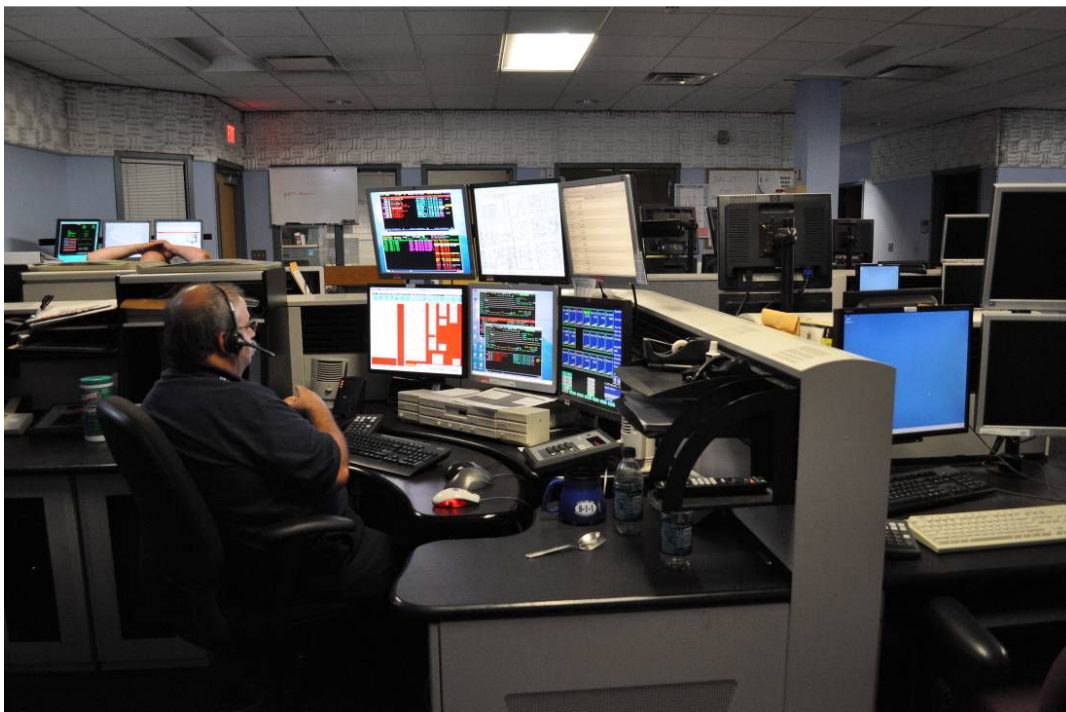


Figure 2-2: EMS Position



Figure 2-3: Local Police Department Grouping



The furniture was updated in 2006.

The following configuration and equipment is being used in the communications center:

9-1-1:

- 17 positions
- PlantCML Patriot (installed 2010)
- 67 line appearances
 - 12 lines 9-1-1 Centrex type wireline
 - 20 lines 9-1-1 Centrex type wireless
 - 35 lines 7-digit lines and other
- ACD (by functional grouping)
- Nice logger for recall function
- 1 Monitor per position
- Numeric keypad extension
- The 9-1-1 system is maintained by Verizon.
- PBX access through the Plant desktop
- Call taker only positions
 - Typically use handsets

CAD / RMS:

- 17 positions in dispatch room
- 21 remote positions (10 in backup center, 11 in county)
- New World Systems AS400 (installed 1992, last updated in 2011)
- CAD Anywhere through virtual private network (VPN)
- Maintained by New World and county IT
- RMS for each law agency
- JMS for the jail
- County GIS mapping



- Pictometry
- AVL
- I am responding
- Rip and Run (email)
- EMD ProQA
- Text messaging
- Automatic paging through Zetron 25
- Mobile data (Verizon)
 - RMS access (all)
 - Mobile dispatch (part time)
 - Mobile reporting
 - AVL (50-60 mobiles for law enforcement)
- County intranet (managed access – NCIC, eJustice, email, weather)
- Four monitors (including IAR), three for law positions

Radio:

- 13 positions (two additional in director's/supervisor's offices)
- Motorola Centracom II Plus (installed 1998)
 - Four speakers
 - Footswitch
 - Headsets
 - Both wired and wireless
 - Mandatory headset use
 - Note: only supervisor position has a microphone
- Maintained by Tri-County Communications
- Backup paging for Zetron 25
- Recall uses NICE system
- One monitor per position



For Fire and EMS, the six monitors are laid out as follows:

Left	Middle	Right
Unit Status	Map	I Am Responding
Phone	CAD	Radio

Table 2-1: Monitor Layout

Law uses five monitors – same layout except for IAR

Logging Recorder:

- NICE – 120 channels (installed 2004)
 - 32 telephone lines with caller ID
 - 55 radio channels/sites/monitors
 - 17 position audio
 - Voice only
- Three playback licenses
 - All senior, shift supervisor
- Planned replacement in 2012
- This recorder will move to the backup dispatch center.

Other Equipment:

- NYSPIN terminal
- NY Alert – Chuck Mike Brett, two supervisors
- Mobile at supervisor (VHF)
- EAS (backup)
- VHF, UHF, DPW mobiles in equipment room
- Alarms for local building, generator
- CCTV – Seldom used (inoperative; in need of service)
 - Hallway, front door, back cage, highway
 - Mostly non-operational except front door



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- Three large status monitors on wall
 - Used for pending incidents, weather, road closures, etc.
 - Controlled by supervisor
- Two TVs



Figure 2-4: Typical Position Arrangement



2.2.2 Dispatch System – Backup Center

A backup 9-1-1 center is located at Broome County Public Library.

- 10 Positions (installed 2010)
- PlantCML 9-1-1 (same as main center)
 - ACD works the same (by login)
- New World CAD (same as main center)
 - Mapping
 - ProQA
- Backup server for CAD
- Two workstations (9-1-1 and CAD), three monitors
- Radio access by mobile (one position)
- Also used as a training center



Figure 2-5: Backup Center

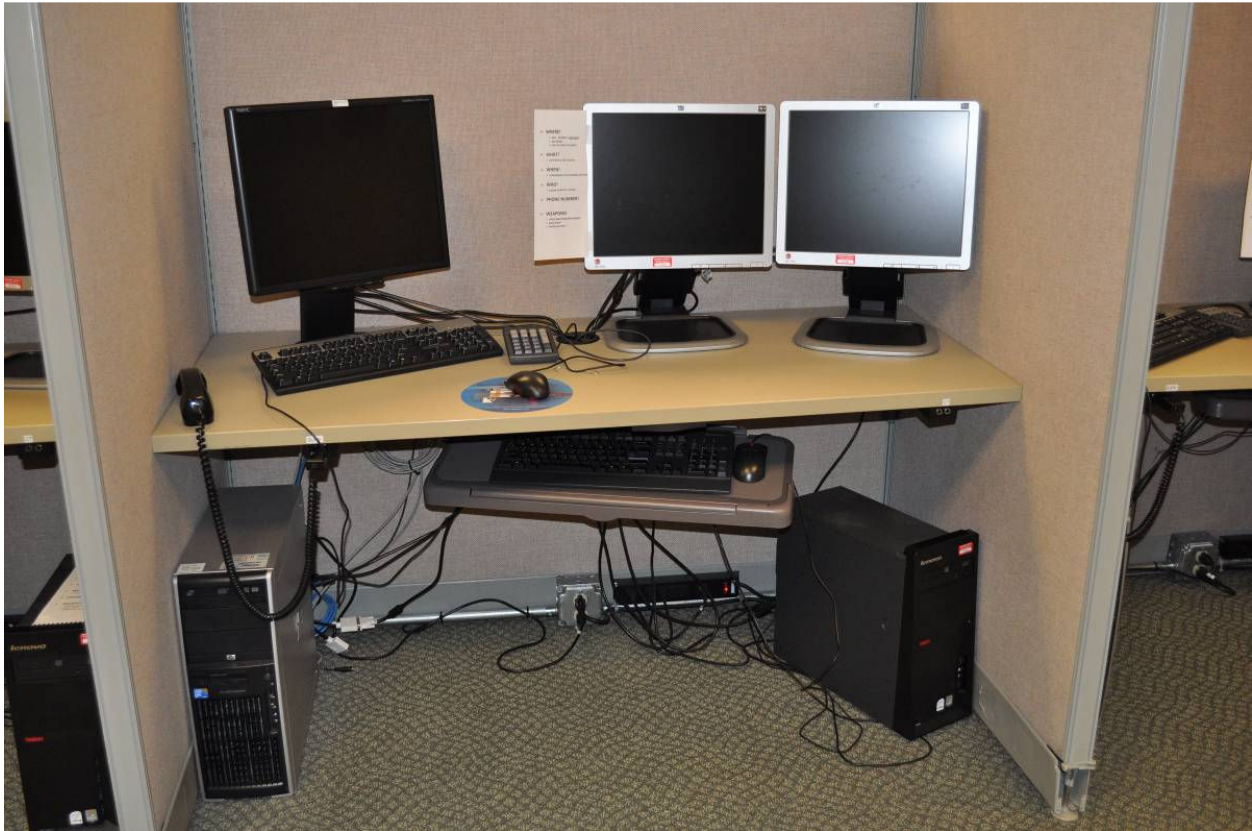


Figure 2-6: Backup Center Position

2.2.3 Other Backups/Shared Access

Union Tower Site:

- Two positions
- Motorola Centracom II (connected to tower only)
 - Low band fire/EMS capability
- CAD/mapping



Communications Van:

- Two positions
- Motorola MIP 5000
 - Plug into Hawkins or Ingram towers
 - (Low band fire/EMS capability only at Hawkins)
 - Several mobiles – all bands
- Laptops for CAD
 - Use commercial wireless services for access
- Regularly used 12-15 times per year

Airport:

- One position
- Centracom
 - Three radios
 - Low band fire/EMS capability
- CAD/mapping

Johnson City Police Department:

- One CAD position
- NYSPN
- Police/fire capability

Vestal Police Department:

- One CAD position
- Police/fire/EMS capability



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Endicott Police Department:

- Staffed 24/7
- 1 CAD position
- Have police-only dispatch capability

Binghamton Police Department:

- Staffed 24/7
- 1 CAD position
- Have police-only dispatch capability

NYSP – Kirkwood:

- One CAD position
- Dispatch State Police – non 9-1-1 calls

Broome Security:

- One CAD position
- Has local dispatch 7 a.m. to 5 p.m., then to county. County has full-time capability.

Port Dickenson Police Department

- One CAD position
- Has local dispatch capability for police/fire

Deposit Police Department

- One CAD position
- Has local dispatch capability for police/fire/EMS



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BCC Public Safety:

- One CAD position
- Has local dispatch 7 a.m. to 5 p.m., then to county. County has full-time capabilities

Binghamton University

- Campus police 24 x 7 dispatch – No county law interface.
- EMS – Harpurs Ferry dispatched by campus police with county backup

EMS Agencies:

- All EMS agencies have each other's frequencies in their radios.



2.2.4 Dispatch Configuration Screens – Main

All of the dispatch positions have the same radio access. There are approximately 57 channel resources/icons available for display. All dispatchers have the capability of modifying their own configurations and screen layouts.

Cross-patching is rarely used. Multi-select is used for receive purpose only. Three alert tones are available, two are regularly used. For fire, A1 is used to cancel. A2 is used for mayday, man down or evacuations. For law, A1 is used for attempt to locate or to clear the air. A2 is used for high-priority 9-1-1 calls.

The consoles receive unit IDs using MDC-1200. They have the ability to use radio check, but the feature is rarely used.



Figure 2-7: Typical Dispatch Screen



2.3 System Access

2.3.1 Radio Access – Main Center

Low band fire has five frequencies available, with some or all frequencies available at up to five towers, with a sixth being added. These frequencies are used for all county fire. The main dispatch and paging channel is F1. F2 and F3 are assigned for operations. F4 is used for fire police, and F5 is used for the Fast Team. Most of the county is dispatch off the low band channels with the exception of several cities. Inter-county 45.88 is also available.

Paging for fire is done through the CAD system. The consoles have full paging capability for backup purposes.

COUNTY FIRE CHANNELS	FREQ	INGRAHAM	HAWKINS	TUSCARORA	UNION	LOCAL	(PEASE)
CONFIG							
FIRE CH1 DISP	33.90	X	X	X	X	X	X
FIRE CH2 FG	33.94	X	X	X	X		X
FIRE CH3 FG	33.98	X	X			X	X
FIRE CH4 FG	33.82		X				X
FIRE CH5 FG	33.86	X	X			X	X
INTER-COUNTY	45.88		X				

Table 2-2: County Fire Channels

Binghamton and Johnson City Fire Departments each have their own UHF dispatch frequencies. Vestal, West Corners, Endwell, and West Endicott and Endicott Fire Departments are all available on the West Broome fire radio system, which is a simulcast/voted system. Four frequencies are available with F1 being the primary dispatch channel. Vestal Fire Department operations are on F2. West Corners Fire Department, Endwell Fire Department and West Endicott Fire Department operations are on F3. Endicott Fire Department operations are on F4. There is also a spare 8 frequency UHF mobile available that has access to some other fire frequencies.



		ANDREWS	UNION	ELY PARK	INGRAHAM
LOCAL FIRE CHANNELS	FREQ				
CONFIG					
WB BROOME F1 DISP	154.310	S	S		
WB BROOME F2 VESTAL FIRE DEPARTMENT	154.355		X		
WB BROOME F3 WEST CORNERS, ENDWELL, WEST ENDICOTT	154.190		X		
WB BROOME F4 ENDICOTT	154.370		X		
BINGHAMTON FIRE DEPARTMENT	460.575			X	
JOHNSON CITY FIRE DEPARTMENT	460.625				X
SPARE UHF (8 FREQS)					

Table 2-3: City Fire Channels

The four of the commercial/propriety EMS services, Broome; Superior; Union and Vestal have their own VHF dispatch channels. Dispatch also has access to SUNY on UHF. All other EMS is dispatched over the low band fire channel.

		OLD STATE	INGRAHAM	UNION	ANDREWS
EMS CHANNELS	FREQ				
CONFIG					
BROOME EMS	155.1600	X			
SUPERIOR EMS	155.2200		X		
UNION EMS	155.1750			X	
VESTAL EMS	156.1950				X
SUNY EMS	460.4125		X		

Table 2-4: EMS Channels



County law, which includes the sheriff's department, New York State Police and other agencies, is dispatched over the primary VHF law channel. Inter-agency, 155.370 is also available and monitored. With the exception of Endicott, Johnson City, Vestal, and Binghamton, all other local law is dispatched on their own main channel. Both Broome County Security and BCC Public Safety are dispatched on their own UHF channel.

COUNTY LAW CHANNELS	FREQ	INGRAHAM	TUSCARORA	HAWKINS	AIRPORT	UNION	(PEASE)
CONFIG							
LAW	154.800	X	X	X	X		X
INTERSYS IA	155.370			X			
BROOME SECURITY	458.400	X	X	X		X	

Table 2-5: County Law Channels

Endicott, Vestal, Johnson City, and Binghamton Police Departments and Detectives have their own VHF frequencies for dispatch.

LOCAL LAW CHANNELS	FREQ	ROUNDTOP	ANDREWS	INGRAHAM	ELY PARKX
CONFIG					
ENDICOTT POLICE DEPARTMENT	155.130	X			
VESTAL POLICE DEPARTMENT	155.310		X		
JOHNSON CITY POLICE DEPARTMENT	155.430			X	
BINGHAMTON POLICE DEPARTMENT	155.850				X
BINGHAMTON DETECTIVES	154.875			X	

Table 2-6: City Law Channels



Several other channels are available to the dispatchers for local government, interoperability and several miscellaneous UHF channels. There is also the console-to-console intercom, typically used by the supervisor.

OTHER CHANNELS	FREQ	HAWKINS	AIRPORT	INGRAM	TUSCARORA	UNION
CONFIG						
SEMO	45.320	X				
VCALL10	155.7525					X
LOC GOV LB	45.40		X			
LOC GOV UHF	458.875			X	X	X
SPARE UHF (8F)	UHF			8F		
INTERCOM (CONS)						

Table 2-7: Miscellaneous Channels

The dispatchers can monitor several other channels and have audio feeds for either of the two TVs located in the communications room.

RECEIVE ONLY	FREQ	UNION			
CONFIG					
LAW		X			
NYSP					
SPECTRA					
SCANNER					
TV1, TV2					

Table 2-8: Receive Only Channels



2.3.2 Radio Access – Backup Center

Currently the backup center only has a mobile for radio access.

Most of the frequencies are covered by the numerous other local communications centers and agencies within the county.

2.3.3 Phone System

The phone system has 32 lines for 9-1-1 and 35 lines for seven-digit, administrative, rollovers and others. The phone system is programmed to roll over on the 33rd 9-1-1 line, or 30 seconds. An ACD system is in use and is programmed to ring groups in a certain order.

There are 35 line appearances for seven-digit and administrative.

- Sherriff (five lines)
- Law administrative (three lines)
- Fire administrative (three lines)
- Binghamton (four lines)
- Johnson City (three lines)
- Vestal (three lines)
- Endicott (three lines)
- Deposit (one line)
- Arson (one lines)
- Auto dial alarms (two lines)



2.4 Dispatch Operations

2.4.1 County Overview

Broome County has a population of about 200,000 and a geographical area of 707 square miles. The population density is about 284 persons per square mile, a medium population density. Broome County has one metropolitan area within its boundaries, Binghamton.

2.4.2 Dispatch Responsibilities

The main dispatch center is manned on a seven-day, 24-hour basis, typically with nine dispatchers available per shift. Broome has an available staff of 36 full-time dispatchers, 16 part-time dispatchers, and six supervisors. The dispatchers work a mix of 12-hour, 10-hour and eight-hour shifts. From 7 a.m. to 3 a.m., typically seven dispatchers are on 12-hour shifts and two dispatchers are on a eight- or 10-hour shifts. From 3 a.m. to 7 a.m. Thursday-Sunday, there are at least eight dispatchers on duty.

All dispatchers are combined call taking and dispatch by the area they are assigned to. There are four call taking only positions available for busy times or large incidents.

The dispatchers have some other responsibilities besides their normal call taking/dispatch function.

They are responsible for after-hour calls for county and city departments of public works and the health department and paging for the coroners.

The dispatchers are responsible for NYSPIN entries for Vestal (sheriff orders, prosecutor entries, warrants, APBs, stolen property, etc.).

There are also several alarms for the county, Chenango and water well.

The supervisors also have access to NY-ALERT and respond to second alarm for Binghamton Fire.

All 9-1-1 calls come into the main dispatch center. Broome County rolls over to NYSP – Sydney and receives rollovers from Tioga County.



2.4.3 Dispatch Operations Tasks

9-1-1 uses ACD by groups; calls will go to appropriate positions in a rotation.

1. Call takers (usually not manned)
2. Fire/EMS (typically main call takers)
3. Local police department

For the seven-digit lines, fire administration calls go to the fire/EMS positions, law administration calls go to the law positions, and the local police department lines go to the local police department positions and then roll over to the fire/EMS positions.

Dispatchers log in by name and type (i.e. law, fire, etc.) to both 9-1-1 and CAD. There are several configuration screens depending on login for the phone and CAD. CAD has 21 predefined status screens.

Different areas of the communications room and positions are grouped by their responsibilities.

One supervisor position

- Four call taker only positions
- One county law position
- Five local law positions plus one law spare position
- One EMS position
- Two fire positions plus two Fire spare positions

Call takers will initiate the CAD record for the incident. The call taker can transfer the calls in three ways: "yell" (verbal), intercom (which is time and date stamped) and by CAD messaging.



2.4.4 Dispatch Operations Overview

Law:

Broome County is responsible for dispatch for the county sheriff, NYSP, and interacts with other agencies such as park police, ENCON police, and the forest rangers. Other federal agencies such as FBI, U.S. Marshalls and U.S. Probation may also interact at times.

Broome also dispatches for Binghamton, Vestal, Endicott, Johnson City, Port Dickinson and Deposit Police Departments. All the local agencies operate 24/7 with the exception of Deposit, which is 20 hour.

Dispatch also handles after-hours calls for Broome County security and BCC public safety.

AVL is available for sheriff’s office, as well as Binghamton, Vestal and Endicott Police Departments. Approximately 50-60 mobiles are equipped.

Typical units available are around 40 during the day, with about 34 at night.

Agency	Day	Night
Binghamton PD	12	12
Vestal PD	4	4
Endicott PD	4	4
Johnson City PD	3	3
Port Dickinson PD	1	1
Deposit PD	1	1
NYSP	12	8
Park Police	1-2	1
ENCON	1	0
Forest Rangers	1	0

Table 2-9: Available Law Units

Law uses five positions with an additional position available as a spare.

Positions two and three both dispatch for Binghamton Police Department, on one primary channel.

Position four is dispatch for Johnson City Police Department full time on one primary channel. Position four also dispatches for Broome Security from midnight to 5 a.m., and BCC Public Safety from 6 p.m. to 6 am. Both security agencies operate on one channel.

Position six is dispatch for Endicott Police Department full time on one primary channel. Position six also shares dispatch responsibility with position four for



Broome Security from midnight to 5 a.m. Position six dispatches BCC Public Safety from 6 a.m. to 6 p.m.

Position 17 dispatches for Vestal Police Department full time on one primary channel.

Position seven dispatches the Sherriff's Office and NYSP over the primary county channel on four towers. Port Dickinson and Deposit Police Departments also are dispatched on this channel. All other agencies use this channel, or the inter-agency channel.

Position five is a spare law position.

For the county law channel, dispatchers will poll for units through a response list provided by the CAD system. Available units in the area may also call in their availability for an incident.

Local police department calls are dispatched to the assigned unit.

Fire:

Broome County dispatches for 36 fire departments encompassing 56 stations; one out of county department and Great Bend Fire Department is also used on occasion.

Position 16 is the primary county fire dispatch position. It dispatches for all fire departments with the exceptions of Binghamton and Johnson City. The primary fire channels are on low band, with the exception of the West Broome simulcast system, which is used for five fire departments.

On the main low band fire Channel, F1 is used for dispatch and paging. F2 and F3 are assigned for operations as needed. The fire frequencies are currently on four different towers, with a fifth being added.

Vestal, West Corners, Endwell, West Endicott and Endicott Fire Departments are on the VHF West Broome channels, which are simulcast and voted. F1 is the primary dispatch channel, with F2 to F4 being used as dedicated operations channels. Vestal dispatches themselves from 8 a.m. to midnight.

Position 10 dispatches for Binghamton and Johnson City Fire Departments, each with their own dedicated channels.

Positions eight and 11 are available as spares.



The following procedure for making a fire dispatch is common to all with a minor exception for Binghamton.

- Send text message
- CAD makes recommendation
- Send rip and run – Binghamton (some agencies with email)
- Pre-announce with address
- Send page(s)
- Announce twice with details
- Announce cross streets and time
- Response by radio or IAR

Note that IAR is not in use for Binghamton, Vestal or Union.

EMS:

Broome County has two fire/rescue units at Deposit Fire Department (BLS only) and Windsor Fire Department. Binghamton Fire Department has ambulance. Chenango, Colesville and Maine have separate ambulance agencies.

There are four private/commercial services used in the county, Broome, Union, Vestal and Superior.

There are three main hospitals within the County, Binghamton, Lourdes and Wilson. Wilson is a Level Two Trauma Center.

At least 90-95 percent of transports are in-county, but may go as far as Sydney, Walton or Cortland.

Three helicopter transport services are available, NYSP, Life Net and Mercy Flight. Most are dispatched by telephone, but they do have EMS channels available.

Position nine is the EMS position. Each of the four primary private services has its own VHF channel. Other ambulances use the primary fire channel. Position nine also does backup for fire positions 10 and 16 as needed.



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The procedure for EMS dispatch is similar to fire dispatch.

- Use ProQA for response
- CAD make recommendation on unit
- Send text
- Pre-announce with address
- Send page
- Announce two times with detail and ProQA code
- Announce cross streets and time
- AMB responds by radio or IAR
- 5-minute timer for BLS, less for ALS, dispatcher discretion
- No other action by dispatcher until case cleared