Westchester County
Department of Emergency Services
Communications Division
Mission Statement

The mission of the Department of Emergency Services is to minimize the loss of life, property and damage to the environment through the provision of comprehensive training, communication services, emergency response and management for local municipalities.
DES Organizational Chart:

Commissioner

Fire Advisory Board
- Deputy Commissioner
  - Fire Division
    - Fire Training
    - Special Operations
    - Code Enforcement
    - Cause & Origin
    - Deputy Fire Coordinators
    - Fire Brigade
    - Maintenance
  - Communications Division
    - 60 Control
    - Computer Aided Dispatch
    - Radio Systems
    - Quality Assurance
    - Field Communications

EMS Advisory Board
- Deputy Commissioner
  - Administration
    - Budget
    - Grants
    - Human Resources
    - Purchasing
    - Accounts Payable/Accounts Receivable
    - Contracts
    - Agreements
    - FOIL Processing
  - EMS Division
    - EMS Program Agency (NYSDOH)
    - EMS Training
    - Deputy EMS Coordinators
  - Office of Emergency Management
    - All-Hazards & Radiological Emergency Preparedness
    - Hazard Mitigation & Disaster Recovery
    - Emergency Operations Center
    - Disaster Logistics
    - Disaster Volunteer Programs

Fire Advisory Board
- Deputy Commissioner

EMS Advisory Board
- Deputy Commissioner
Communications Division

• Emergency Communications Center (ECC)
• Computer Aided Dispatch (CAD) Section
  – Hexagon onsite System Engineer
• Information Technology Liaison
• Radio System Manager (RSM)
• Amateur Radio Operations (RACES)
ECC (60-Control)

• Provides Primary Dispatch Services
  – 52 Fire
  – 30 EMS
15 other direct dispatch with a follow-up call to primary center.
Manage all Fire / EMS Mutual Aid.

2016
186,000 Phone events
142,000 CAD entries (50K FD / 60K EMS)
Emergency Communications Center

Communications Chief (1)
Communications Captain (1)
Senior Communications Operator (6)
  • Group Lieutenant / CAD Lieutenant
Communications Operator (19)
Application Support Specialist (1)
Program Specialist QA/QI (1)
Radio Systems Manager (1)
CAD System Engineer (1 Contracted)
ECC Staffing:

- Communications Operators:
  - Five Groups (Rotating Schedule)
  - Each Group has a working SCO (Lieutenant)
  - Minimum staffing is four 24/7
  - Daytime volume is highest and often a minimum of five are assigned.
  - Severe weather or unusual events, additional staff can be called back at SCO discretion.
  - New staff members: 12-14 week training program with ~ 6 month mentoring program.
    - EMD, APCO, CAD, Radio, Road Familiarity, etc.
ECC Staffing:

- **Supervisors:** Group Lieutenant
- Responsible for managing group/shift
- 15 – 29 years of ECC experience. (Ave. 21)
- Supervisor Training (APCO)
  - In-house HR Training
ECC Operations:

- Combined Call Taker / Dispatcher model
- EMD:
  - NAED Certified in Protocol Driven Questioning to determine severity.
    - Software (ProQA)
    - Flip Cards
    - Pre-arrival instructions
    - Quality Assurance
    - Medical Director
ECC (Monitoring)

- Hospital Diversion
  – (CAD Integration)
- Weather
ECC:

- Dispatch Positions: (911, CAD, Radio, etc.)
- Ergonomic Consoles (Staff comfort)

- 8 ECC
- 2 CAD
- 1 COMMS
- 3 TMC
ECC

Redundancy:

• Dual Purchased Power Feeds
• Phone: (Multiple Systems)
• Data Backup Q15 min. / Sonet Ring
• UPS
• Primary Generator /2 °Generator
• Backup Center (TMC) limited # positions
• Field Comm. 1
ECC Operations:

• Dispatch operations are dictated by CAD programming and comprehensive policy's and procedures.

• CAD Section coordinates agency specific responses and procedures.
  – Response Plans
    • Structured / Unstructured
  – Greater Alarm Plans
  – MA Run Card
  – Agency Officer can override CAD recommendations.
ECC Operations:

- **Event Types:** (63)
  - Fire – Multiple Subtypes
  - EMS  Multiple Subtypes

- **Disposition:** (51)
  - Agency officer or apparatus should provide a brief description of the disposition, the ECC will translate to a CAD disposition type.
ECC Operations:

• Phone:
  – 2° PSAP – E911 calls must be transferred
    • (40 Primary PSAPs)
  – E911 (Provides ANI/ALI info)
  – Wireless 911 Transferred by W911 PSAP (NYSP)
  – Business (Seven Digit)
    • Alarm Company
    • Other transfers

VoIP: (Hotline) Hospitals

Ring down:
• Utility
• MNRR
• Hospitals
• Utilities
ECC Operations: Vesta
Computer Aided Dispatch (CAD)

- CAD: Hexagon / Intergraph Public Safety (IPS) CAD since 2001.
- GIS based dispatch tool used to manages events, responses and special situations.
  - Event Type Dispatch
  - Greater Alarms
  - CIDS Information
  - Interface w/ multiple third party products.
Computer Aided Dispatch (CAD)
Computer Aided Dispatch (CAD)
Computer Aided Dispatch (CAD)
## Computer Aided Dispatch (CAD)

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<thead>
<tr>
<th>Incident#</th>
<th>Event Type</th>
<th>Sub Type</th>
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<td>727 MAIN ST NEW_ROCHELLE</td>
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<td>P1612254</td>
<td>NOTIF</td>
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Computer Aided Dispatch (CAD)
Oblique Imagery
Computer Aided Dispatch (CAD)

- What's the location of your emergency?
  - E911 Transfers (ANI/ALI)
    - Verify Location / E911 Discrepancies
  - Specific Address / Municipality (keyed)
  - Intersection / Cross

Commonplace Name:
- Example: Dunkin Doughnuts
- Mr. Magoo’s House
  - 123 Main Street
• Critical Incident Dispatch System (CIDS)
  – Provides prompts to ECC operator on specific hazards, dangers or unusual circumstances.
  – Example: Hazardous materials, difficult access...
  – CAD will alert with CIDS information – it will be shared by radio or phone.
  – Web portal built to allow for agency entry

Note: Data must be kept updated.
Other Tools:

- I/NetViewer
- CAD Times
NetViewer:
### Department of Emergency Services

#### 60-Control CAD Times

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<th>Ack</th>
<th>Date</th>
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<th>Time Out</th>
<th>Resp</th>
<th>On Loc</th>
<th>Event Type</th>
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<th>Eroute to</th>
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<td>1200112</td>
<td>09:39:00</td>
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### Agency: FIRE
### Dispatch Group: ECHST

### Agency: FIRE
### Dispatch Group: FAIRY

### Agency: TFR
### Dispatch Group: GRNVI

### Agency: TFR
### Dispatch Group: LARCH
Other Tools:

• HipLink

RMS Interface (FTP)
Other Tools:

- Hospital Diversion
Hospital Diversion - Demo

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<th>Contact Phone</th>
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Other Tools:

Field Resources:
Mobile Communications Unit - Field Comm. 1
“Not a Command Post”
Site on Wheels (SOWs)
• 80’ Tower w/ multiple radio systems
• 100’ Tower w/ multiple radio systems
Radio Cache: UHF / VHF Radios
Communications Unit Leader (COML)
Field Comm. 1:

Not an ICP... So when do we call?
Field Comm. 1:

- Multiple Radios Systems
  - (VHF – Lo /High, UHF, 700/800)
- Video
- Broadband Satellite
- Network (WiFi) Internet
- Radio Cache
- Gateway Patching
- CAD I/NetDispatch
- Phone
- Audio recording capability
- COML / Liaison when required
Site on Wheels (SOW)

- SOW 1 80’ unguyed tower
- SOW 2 100’ unguyed tower
- Multiple Radio Systems / Repeaters
Portable Repeater:
Radio Systems

• UHF Trunked Radio System: (Talk Groups)
• Simulcast analog system.
  – 10 Fire (Preassigned)
  – 10 EMS (Preassigned)
  – 10 Operations (Assigned as needed)
  – 10 Tactical (Assigned as needed)

Talk groups are set up geographically, any transmissions will take system resources.

Operations and Tactical are assigned by the ECC as required, do not self direct.
## Talk Groups

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<th>Fire 10</th>
<th>Fire 11</th>
<th>Fire 12</th>
<th>Fire 13</th>
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</table>
Motorola XTL2500

UHF Trunked Mobile Radio

Do you know your radios?
Motorola Mics

- DTMF Mic
- Bluetooth Mic
- Control Mic
Radio Systems

Fire Ground Radios:

• Eight channel simplex (direct) radio communications.
  – Short distant communications (line of sight)
  – Channels pre-assigned based on location.
  – Licensed to the County by the FCC
Low Power (2 w) mobile use, can monitor mobile.

NO mobile or base station communications.
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Simplex vs. Trunking

**Conventional System**
Message on Channel 1 same frequency
Reply on Channel 1 same frequency
If the system uses a repeater, then Tx and Rx are different frequencies but do not change

**Trunked System**
Message on Talkgroup 1, uses frequency 1
Reply on Talkgroup 1, uses frequency 6
Next message on Talkgroup 1, uses frequency 3
Next reply on Talkgroup 1, uses frequency 8
The frequencies are entirely random within the system and dependant upon which frequencies are available at that exact moment
Simplex:
Simulcast Radio System:
Voting Radio System:
Trunking Talk Groups:

- Emergency Ops Talk-Group
- Common Ops Talk-Group
- Law Enforcement Talk-Group
- Road Construction Talk-Group
- Fire Talk-Group
- Emergency Medical Talk-Group
- Public Works Talk-Group
- Engineers Talk-Group
Conventional vs. Trunking

- Channel 1
- Channel 2
- Channel 3
- Channel 4

Frequency 1 Controller

Frequency 2
Frequency 3
Frequency 4
Frequency 5
ECC Comms

- Radio Transmissions:
- Short concise messages: (Plain English)
  - Acknowledge (AK)
  - Responding (RS)
  - Arrived (OL)
  - Enroute To (ET) EMS
  - Available in Quarters (AQ)
  - Available Voice (AV)
    - Abbreviations of CAD report

Put me, mark me, etc... Not necessary.
Incident Size up

- Location of Incident: (Confirmation)
- Extent of Incident / Situation:
- Tactical Operations / Considerations:
- Identify the IC
- Units Operating:
- Status:
  - Doubtful - may require additional units/support
  - Probably Will Hold - resources should suffice
  - Under Control – Situation Stable
Incident Size up

• Staging Area - if designated
• Access – Best access to the event
• Building dimensions – Exposures (A, B, C, D,...)
  – Paints a picture of the incident
Interoperability (NYS OIEC)

• New York Interoperable and Emergency Communications Vision: To ensure emergency responders can effectively communicate during day-to-day operations, significant events, and disasters to protect lives and property.
Federal I/O Continuum

- Governance
  - Individual Agencies Working Independently
  - Informal Coordination Between Agencies
  - Key Multidiscipline Staff Collaboration on a Regular Basis
  - Regional Committee Working with a Statewide Interoperability Committee

- Standard Operating Procedures
  - Individual Agency SOPs
  - Joint SOPs for Planned Events
  - Joint SOPs for Emergencies
  - Regional Set of Communications SOPs
  - National Incident Management System Integrated SOPs

- Technology
  - Swap Radios
  - Shared Channels
  - Gateway
  - Proprietary Shared Systems
  - Standards-based Shared Systems

- Training & Exercises
  - General Orientation on Equipment
  - Single Agency Tabletop Exercises for Key Field and Support Staff
  - Multiagency Tabletop Exercises for Key Field and Support Staff
  - Multiagency Full Functional Exercise Involving All Staff
  - Regular Comprehensive Regional Training and Exercises

- Usage
  - Planned Events
  - Localized Emergency Incidents
  - Regional Incident Management
  - Daily Use Throughout Region

Interoperability Continuum

Minimal Level  →  Interoperability Continuum  ←  Optimal Level
I/O Resources

- WC FOG
- WC TICP
- NYS TICP
- National FOG (NIFOG)
COMMUNICATIONS BULLETIN

Interoperable Communications – NYC & Westchester Direct Communications Frequencies

Use of National UTAC frequencies for Command and Control coordination with NYC: The Westchester County Department of Emergency Services, in coordination with the New York City Fire Department (FDNY), has a following National Interoperable Radio System frequencies to support direct command and control communications with New York City units. Cooperating agencies responding to border a York City response (e.g., New Rochelle, Pelham Manor, Mount Vernon, Yonkers, etc.) should attempt to hail FDNY via the below frequencies.

<table>
<thead>
<tr>
<th>Area</th>
<th>Mutual Aid Agency</th>
<th>Mode</th>
<th>Princ</th>
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</thead>
<tbody>
<tr>
<td>NYC Border (Highway, land-based)</td>
<td>FDNY (Fire &amp; EMS)</td>
<td>Portable/Mobile</td>
<td>UTAC</td>
</tr>
<tr>
<td>NYC Border (Water – Hudson River &amp; Long Island Sound)</td>
<td>FDNY (Fire &amp; Rescue)</td>
<td>Portable/Mobile</td>
<td>UTAC</td>
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</tbody>
</table>

Responding units should monitor the primary UTAC channel assigned to the contiguous or adjacent channels can provide direct communications with FDNY units and Westchester unit to ensure that include relaying essential information such as event location, severity and any prearranged details. The National Interoperability channels may be used to support the following objectives:
- Multidiscipline or multidirectional tactical and/or command needs
- Day to day interoperability coordination
- Emergency mutual aid

If required the FDNY can hail the Westchester County Emergency Communications Center via the national interoperability channel UCA4140 or call (914) 231-1065 if assistance is required emergency.

Background:
The Tappan Zee Bridge is a critical river crossing for the New York City Metropolitan Area. It spans between the Village of Tarrytown (Westchester) and Village of Nyack (Rockland). The bridge is approximately three miles long and manages daily vehicle traffic of ~1,240,000. The bridge is owned and operated by the New York State Thruway Authority.

The Tappan Zee Bridge includes some inherent challenges that include traffic congestion, limited access and river traffic. During an emergency multiple agencies and disciplines may respond. Additionally, the bridge replacement project includes challenges with a large number of personnel (workers), heavy equipment and the other hazards.

Goal:
In an effort to enhance Command and Control and mobile radio (LMR) communications during an emergency, Westchester County has invested in the purchase and installation of ACU2000 radio gateway. The gateway is configured to allow the disparate (disparate) radios to be used in a single talk group to support the management of resources and enhance responder safety.

The gateway is installed on the shore of the Hudson River in the Tarrytown area. The gateway will allow for line of sight communications on or around the bridge and maritime area.

Gateway:
The gateway will be configured with the following simplex (Direct / Non-Repeated) National Interoperability channel patch: (NFICG V1.5)

- VTAC14: 159.4725 MHz
- 156.7565A: Tx, CSQ Rx
Interoperability Rules

• Follow ICS (NIMS)
• Use plain language (Avoid codes / Acronyms)
• Identify agency and unit ID
• Keep communications clear and brief
• Request assistance when required and demobilize when possible.
Interoperability Tools

- Face to Face (Best means of communications)
- Shared Channels (Ex: Fire Ground)
- Shared Systems (Ex: Trunk / UTAC / VTAC)
- Shared Radio (Radio Cache)
- MCV (FC1 or other)
- Console Patches
- Gateways
UCALL/UTAC

National Interoperability Radio Channels are used nationally and regionally to hail ECCs or to communicate in simplex and duplex modes. Use: Multiagency or Multidiscipline events.

- UCALL 40 – Hailing Channel
- UTAC 41/D – Simplex / Repeater
- UTAC 42/D – Simplex / Repeater
- UTAC 43/D – Simplex / Repeater
- Can be used in/out of County
UCALL/UTAC

Coordinate use with 60-Control.

• Repeaters must be turned on/off unless an activation is requested.
• ECC must make notification when repeater is turned on. (Multi-State Reflector)
• WC/NYC – Border Protocol:
  • Utilize UTAC42D / 41D for direct comms.

All UTACs are programmed in the trunk subscriber radios. Zone “D”
VCALL/VTAC

Westchester VHF interoperability tower map
VCALL/VTAC

Coordinate use with 60-Control.

- Repeaters must be turned on/off.
- ECC must make notification when repeater is turned on. (Multi-State Reflector)

Similar to UCALL/UTAC on the VHF band.
Radio Operations

• Do you know your radio?
• Where do you carry your portable (HT)?
  – Inside coat, radio pocket, case, etc.
  – Radio positions (Optimal vertical antenna)
  – Channel naming (Is it common?)
  – Speak into the mic ~1”-2” from your mouth.
  – Keypad lock? (Option in some radios)
  – Deadman channel programming

1, 2, 3, 4, 5… 5, 4, 3, 2, 1
Radio Operations

• Are your radios maintained?
• Cleaned?
• Broken or cracked items replaced?
• Don’t bend antenna, carry the radio by it or hang items off of it.
• Take good care of the equipment that may save your life...
Radio Operations

– Keys to success:
– Radio Familiarity (Mobile / Portable)
– Equipment Choices
  • Durable, knob location, cost, etc.
– Noise
  • Minimize background noise if possible
– SCBA
  • Speak close to mask
– Position (Horizontal vs. Vertical)

Practice – Practice – Practice
Recent Enhancements:

**With NYS SICG Grant Funding:**

- VTAC Buildout
- Primary site microwave connectivity to provide redundancy to fiber.
- Field Operations Guide (FOG)
- FOG training
- Tactical Interoperability Plan (TICP).
Future:

County:
• Replacement of current trunked system w/ digital technology. (End of Life)
  – Working with consultant. (FE)
  – Working with FAB/EAB.
  – Updates posted on FAB/EAB sites.
• Replace existing low band paging/alerting system.

Feds: FirstNet (PS Broadband Network)
Questions?