Integrating TMCs and PSAPs to Enhance Public Safety
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Welcome

- US DOT
- Intelligent Transportations Systems Joint Program Office (ITS JPO)
- Transportation Safety Advancement Group (TSAG)

**TSAG Communities of Interest**

<table>
<thead>
<tr>
<th>Emergency Medical Services</th>
<th>Law Enforcement Operations</th>
<th>Technology and Telematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Communications</td>
<td>Transportation Operations</td>
<td>Academic Research</td>
</tr>
<tr>
<td>Fire Rescue</td>
<td>Emergency Management</td>
<td>Government Agencies</td>
</tr>
</tbody>
</table>
WHAT COMMUNITY OF INTEREST DO YOU REPRESENT?
Integrating TMCs and PSAPs

Source: USDOT
Integration Opportunities

- Physical integration – colocation of DOT and public safety personnel
- Voice integration – radio and telephone integration
- Data system event record sharing – ATMS and CAD

Photo Credit: Pat Noyes
Data Integration Options

- Incident alerts
- View event records
- Merge event records
- Two-way integration

Source: Creative Commons
Full Integration

- Real-time data sharing between PSAP CAD system and ATMS or TMC system
- Automatic flow of event data between systems
- Record initiation by PSAP call takers and TMC operators
- Opportunity to merge events as needed
- Event data available for ATMS and analysis
Niagara International Transportation Technology Coalition (NITTEC)
NITTEC Coalition

- Established in 1995 with a Federal Mobility Grant
- Regional Collaboration and Leadership
  - Technology Deployment
  - Operations
  - Incident Management
  - Traveler & Traffic Information
- Multi-Agency Transportation Operations Coalition
  - 5 Policy Members, 9 General Members, 28 Affiliate Members
    - Transportation Agencies
    - Public Safety and Border Enforcement
    - Emergency Services and Recovery
  - Only Bi-national Coalition of its kind in U.S. / Canada

NITTEC Mission
To improve mobility, reliability and safety on the regional bi-national multimodal transportation network through information sharing and coordinated management of operations.
NITTEC Region-Southern Ontario/Western NY
NITTEC Functions

- Multi-agency Collaboration
- Traveler Information
- Border Traffic Management
- Emergency Management
- Incident Management
- Construction Coordination
- Traffic and Congestion Management
- Weather System Monitoring
- Special Event Planning and Management
- Transportation System Monitoring
- Performance Measures Reporting
NITTEC Operations Center

- Centralized 24/7 operations and traffic management services for bi-national region
- Information Clearinghouse
- Standardized Operations
- Multi-Agency Event Planning and Operations
- Multi-Agency ITS Deployment
- Regional Messaging Standards
- Traffic Management Plans
Incident Management - Collaboration

• Regional Incident Management Committees – WNY & Ontario
• Monthly Meetings & Incident Debriefing
• Response Protocol Agreements
• Standardized Facility Incident Markings
• Education and Training
• Relationships
• Promotion of National Unified Goal for Incident Management
Incident Management

- Single Regional Contact Point
  - Transportation Agencies
  - Public Safety & Emergency Services
  - Roadside Assistance
  - Weather
- Major Incident Support Systems
- CAD – ATMS Data Sharing
  - Real-time Data Sharing Through Direct Network Connectivity
  - Transportation Agencies
  - Public Safety Agencies
System Integration and Data Distribution

- 2006 developed Concept of Operations
- NITTEC Acts as hub for all transportation information
- Incoming data
  - Verbal – phone / radio
  - Visual – CCTV
  - Systems – ATMS, detectors, CAD integration, etc.
- Outgoing information
  - C2C - Integration
  - Xml format
  - Email / Chatter
  - Verbal
CROSSROADS-I3B-CHARMS Interface
NITTEC ATMS Integration
NITTEC – CPS Chatter
Incident Management - Data

- Date / Time
- Location
- Severity
- Notifications
- Incident Timeline
  - Detection Time
  - Verification Time
  - Scene Arrival Time
  - Lane Clearance Time
  - Clearance Time
  - Scene Departure Time
  - Return to Normal Condition
Center-to-Center Data

### Messages Sent/Received

<table>
<thead>
<tr>
<th>Location</th>
<th>2018</th>
<th>2019</th>
</tr>
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<tbody>
<tr>
<td>Amherst</td>
<td>8,482</td>
<td>9,770</td>
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<tr>
<td>Cheektowaga</td>
<td>4,428</td>
<td>4,321</td>
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<tr>
<td>East Aurora</td>
<td>1,144</td>
<td>1,017</td>
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<td>Evans</td>
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<tr>
<td>Lackawanna</td>
<td>932</td>
<td>986</td>
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<tr>
<td>MTO</td>
<td></td>
<td>12,494</td>
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<tr>
<td>NYSDOT</td>
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<tr>
<td>NYSTA</td>
<td>5,596</td>
<td>6,078</td>
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<tr>
<td>Orchard Park</td>
<td>4,987</td>
<td>4,689</td>
</tr>
<tr>
<td>West Seneca</td>
<td>3,015</td>
<td>3,180</td>
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</tbody>
</table>

Number of Messages

- **2018**: Orange
- **2019**: Blue
Contact Information:

Athena Hutchins, P.E., F.ASCE
Executive Director
ahutchins@nittec.org
716-847-2450
State Patrol / MN DOT
CAD integration

John McClellan
Freeway Operations Supervisor
MNDOT Regional Transportation Management Center (RTMC)
• MN population 5.6 million
  – Over ½ of state’s population within 30 mile radius of Minneapolis or St Paul downtowns.

• TMC historically focused on Metro area & commuter traffic
Regional Transportation Management Center (RTMC)

Joint dispatch facility:
- DPS State Patrol Dispatch
- MNDOT Metro Maintenance Dispatch
- MNDOT Freeway Operations (TMC)

Total building size: 53,000 square feet - Dispatch area: 10,000 square feet.

Employees are all State workers.
RTMC Dispatch Floor
State Patrol 911/Dispatch
MNDOT Metro Maintenance Dispatch
MNDOT Freeway Ops
Metro TMC system

550 miles of fiber

900 Metro cameras, 250+ DMS boards, 6500 loops & Wavetronix

450 ramp meters (traffic adaptive)

HOV / HOT operation.

FMS software (IRIS) developed by TMC staff (open source GPL)
TMC’s Goal – Awareness of EVERY incident on Metro Freeways

Every incident – Pin down on camera within 20 seconds of dispatch and begin triage.

– Dispatch FIRST
– Deploy message boards
– Call SP to correct location
– Traffic reporter contacts
– Coordinate with Maintenance Dispatch.
– Or just keep an eye on it...
Freeway Incident Response Safety Team (F.I.R.S.T.)

¾ ton pickups
Computer Aided Dispatch (CAD)

About 1/3 of states report access to CAD data.

- Text data feed
- Direct feed into ATMS
- View only CAD
- CAD workstation but only for LEO eyes
What’s Unique* for MN?

MNDOT TMC & FSP fully uses Patrol’s CAD
  – Create own events
  – Use State Patrol generated events
• TMC logs benchmarks (lanes & inc clear, arrival times)
• FSP logs work done (gas, jump, push, tire change)
• Coordinate response with Patrol (units, chat msg, AVL)
• Protected (CJI) data is firewalled off.
TMC / FIRST Dispatch workstation

IRIS & email
CAD
Cameras
Radio
Before Integration

- CAD
- TMC I-LOG
- FIRST paper
- IRIS ATMS

- DMS
- Inc
- Inc
- Inc
- Inc
- 511
After Integration

Patrol dispatch

TMC

FIRST

CAD

InterCAD

TMC DB

IRIS

511

Inc

Inc

Inc

Inc

DMS

DMS

DMS

DMS
TMC Benefit?

• Since 2000 system has grown
  – 2 to 3x number of miles
  – 5x cameras
  – 10x message boards
  – Funding?

• Same number of staff as 20 years ago!
  – 4 per peak period
Benefits

• Public
  – Max benefit of TMS infrastructure
  – Especially for managed lanes!
  – Goal - scene management & efficient clearance

• Responders
  – Scene safety starts with good location info
  – Ability to upgrade or downgrade response before on-scene
Challenges

• Creation - Years of hard work
  – Individual & management level
  – Maintenance
  – Patrol
• Maintaining relationship
• Budget & politics
Future Challenges

Getting the data in:

– Locals PSAPS taking freeway 911 calls
– Local PD encrypting mains
– Calls going to WAZE instead of 911
– Adding statewide responsibilities
– Scaling for severe weather
– Connected vehicles
Findings
Potential Benefits

• Faster notification of incidents
• Improved incident response and quicker clearance
• Reduced workload/time through automation
• Enhanced situational awareness
• Enhanced access to resources
• Improved communications and coordination
• Improved data for DOT operations and planning
Challenges

- System integration
- Information overload
- Data security and sensitivity
- Interagency resistance to integration
- Resources

Source: USDOT
TSAG Recommendations

• Support advancement and implementation of integration
• Develop a pilot program to test or expand integration
• Support additional research on the benefits of TMC-PSAP integration
• Expand the use of incident data to maximize ROI and public safety

Source: Creative Commons
WHAT TMC-PSAP INTEGRATION EXISTS IN YOUR STATE OR REGION?

PARTICIPATE
WHAT HAS BEEN YOUR BIGGEST CHALLENGE TO TMC-PSAP INTEGRATION?
Questions

Type your questions in the chat pod.

http://www.tsag-its.org