Improving Integration and Information Analysis for MaineDOT's Roadway Incident Management and 511 Systems

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Today’s Presentation

- Transportation Operations & ITS Overview
- GeoDecisions Transportation Operations Solution → GeoTOPS
- MaineDOT GeoTOPS Deployment
Transportation Agencies in Transition

Moving From:
- Construction & Maint.
- Project-focused
- District/State Lines
- M-F, 8 a.m. to 5 p.m.
- Reactive
- Single Operator
- Concrete and Steel
- Stand-Alone Systems
- Measuring Activity

Moving Toward:
- Const., Maint., & Operations
- User-oriented
- Regions & Corridors
- 24/7 Operations
- Proactive
- Partnerships
- Advanced Technologies (ITS)
- Integrated Systems
- Measuring Performance
TMCs: Data, Data, Everywhere
TMCs: Trying to Manage and Use Data

Operator

Operator

Operator

TMC OPERATORS (multiple)

COMPUTERS (multiple)

SOFTWARE APPLICATIONS (numerous)
The Limitations of Today’s TMCs

- Many still have multiple systems for utilizing ITS field devices and other TMC systems
  - Operators wear out their chairs moving between different computers
- Many TMCs still rely heavily on manual processes such as faxes and phone conversations
  - Integration and automation of existing systems has been expensive and problematic
- Data sharing between agencies is difficult and not streamlined
  - Increased data from existing systems
  - Increasing sources of data
Streamlining TMC Operations: GeoTOPS®

- GeoTOPS is a GIS-enabled TMC master software
- Provides for integrated, efficient TMC operations
  - Consolidated control of ITS field devices
  - Integration of real-time and static transportation data
  - Incident management module
  - Winter road management module
  - Text, email and/or cell phone notifications
  - Dynamic detour routing
  - ITS asset management module
  - Third party traffic, weather and incident information
  - Freeway service patrol dispatch and tracking

First deployment - MaineDOT
MaineDOT's Traffic Operations Needs

- MaineDOT's incident response/event planning capabilities need to be improved.
- Current software in use is outdated and limited in functionality and support.
- Ability to locate incidents/events is spatially limited.
- Coordination of responses among agencies is ad hoc.
- Winter road conditions response is cumbersome.
MaineDOT GeoTOPS® Development - Completed

Phase 1 (Current) Requirements:

- Retrieve incident response/management plans, detour routes
- Multiple methods of locating new incidents/events
- Time stamping/incident/event logging
- Automated contact list choices/selection
- Field device display
- Device find (proximity searches)
MaineDOTGeoTOPS® Example Workflows

- Designed to replicate TMC incident/event response workflows
- Fully integrated with GIS-enabled mapping
System Map Interface
Incidents and Events Display, Selection
Planned Events Entry, Editing

Event Number: 3292010356252577311

Notification Input:
Name: David Krebb, Contact Method: Telephone, Telephone: 789-555-5555, Email: email4@gfnet.com, Details: TEST

Contacts/Devices:
- 911 Call Center
- Bob Matthews
- CC TP Communications
- CCTV Camera - Visual Detection
- David Krebb
- EMH
- Incident Detection Alarm
- John Smith
- Maggie Lane
- Matt Black

Enter any validation comments

Details:
Scheduled road closure

Contact/Device:
Paul Knight

Contact Method:
Telephone

Telephone:
777-555-5555

E-Mail:
email5@gfnet.com

Update Validation: 3/29/2010 9:53 AM
Unplanned Events Entry, Editing

Unplanned Events Entry

Route: 0095S  
Direction of Travel: Southbound

Select Location From Map

Beginning Location:  
Exit:  
Mile Point: 10.5  
Lat/Long:

Ending Location:  
Exit:  
Mile Point: 12  
Lat/Long:

Category:  
Cause:  
Status:  
Scheduled Closing:  
Scheduled Reopening:

Update Event Details

Select the mile point the event ends at
TMDD-Compliant Incidents/Events Selection

[Screen capture of a software interface for selecting unplanned events and their details.]

Alternate Route
Closures
Delays Status Cancellations
Device Status
Disasters
Disturbances
Generic Locations
Incident Response Equipment
Incident Response Status
Incidents
Lane Roadway Descriptions
Mobile Situation
Obstructions
Parking Information
Pavement Conditions
Precipitation
Qualifiers
Responder Group Affected
Restrictions
Roadwork
Special Events
Sporting Events
System Information
Temperature

Direction of Travel: Southbound

Select Location From Map

Select a TMDD category

Scheduled Closing:

Scheduled Reopening:
Specify by Location

Event Details Entry

Event Number: 3292010356252577311

Route: 0002W | Direction of Travel: Southbound

Beginning Location:
Exit: Mile Point: Lat/Long: 44.8033, -68.7707

Ending Location:
Exit: Mile Point: Lat/Long:

Category: Roadwork | Cause: Gas Main Work | Status: Closure

Scheduled Closing: 3/11/2010 8:45 AM | Scheduled Reopening: 3/18/2010 8:30 AM

Repeats: Daily

Update Event Details
Clear and Close Out Events

Event Number: 3292010356252577311

Enter comments associated with the clearing of the event:

Cleared with 1/2 mile backup.

Clear: 4/11/2010 1:54 PM
## Active Event List

<table>
<thead>
<tr>
<th>Event Id</th>
<th>Planned</th>
<th>Route Code</th>
<th>Last Action</th>
<th>Cause</th>
<th>End D/T</th>
</tr>
</thead>
<tbody>
<tr>
<td>472010482823227459</td>
<td>Yes</td>
<td>0004A</td>
<td>Initial Clearing</td>
<td>Information Service is Being Suspended</td>
<td>04-27-10 13:30:06</td>
</tr>
<tr>
<td>452010538529727512</td>
<td>No</td>
<td>0008X</td>
<td>Initial Event Communications</td>
<td>Message Cancelled</td>
<td></td>
</tr>
<tr>
<td>452010489332877010</td>
<td>Yes</td>
<td>0009A</td>
<td>Initial Event Communications</td>
<td>Minimum Temperature</td>
<td></td>
</tr>
<tr>
<td>462010347940059979</td>
<td>No</td>
<td>0007X</td>
<td>Update Event Communications</td>
<td>Surface Water Hazard</td>
<td>04-06-10 15:00:00</td>
</tr>
<tr>
<td>482010574083170562</td>
<td>Yes</td>
<td>E312C</td>
<td>Initial Event Communications</td>
<td>Inspection Lanes</td>
<td>04-23-10 16:45:00</td>
</tr>
<tr>
<td>3292010356252677311</td>
<td>Yes</td>
<td>0002W</td>
<td>Update Validation</td>
<td>New Road Layout</td>
<td>03-18-10 08:30:00</td>
</tr>
<tr>
<td>482010608913065382</td>
<td>Yes</td>
<td>0003X</td>
<td>Initial Event Communications</td>
<td>Person Intoxicated</td>
<td>04-21-10 18:15:00</td>
</tr>
<tr>
<td>3292010586782787089</td>
<td>Yes</td>
<td>0009X</td>
<td>Initial Event Communications</td>
<td>Performing Arts</td>
<td>03-10-10 16:30:00</td>
</tr>
<tr>
<td>492010348198510034</td>
<td>No</td>
<td></td>
<td>Initial Validation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>452010593970571975</td>
<td>Yes</td>
<td></td>
<td>Initial Validation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>462010621811390196</td>
<td>Yes</td>
<td></td>
<td>Initial Validation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>472010409868628783</td>
<td>No</td>
<td></td>
<td>Update Notification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>328201032448233558</td>
<td>Yes</td>
<td></td>
<td>Initial Notification</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Automated Event Logs

<table>
<thead>
<tr>
<th>Action</th>
<th>Date/Time</th>
<th>Event Id</th>
<th>Is Planned</th>
<th>Route</th>
<th>Direction</th>
<th>Is Interstate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record Creation</td>
<td>4/6/2010 9:39:54 AM</td>
<td>462010347940059979 F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Notification</td>
<td>4/6/2010 9:39:54 AM</td>
<td>462010347940059979 F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Update Notification</td>
<td>4/6/2010 9:40:01 AM</td>
<td>462010347940059979 F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Validation</td>
<td>4/6/2010 9:40:13 AM</td>
<td>462010347940059979 F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Update Event Communications</td>
<td>4/6/2010 10:04:55 AM</td>
<td>462010347940059979 F</td>
<td></td>
<td></td>
<td>0007X</td>
<td>3</td>
</tr>
</tbody>
</table>
Asset Management
# Winter Road Conditions Administration

## GeoTOPS Main Menu
- Winter Road Conditions Administration

## Winter Road Conditions Administration Search Engine

### Regions:
- All
- Eastern
- Midcoast
- Northern
- Southern
- Western

### Crew:
- All
- 71101
- 71102
- 71103
- 71105
- 71106
- 71107
- 71108
- 71109

### State Route:
- All
- 0001A
- 0001B
- 0001S
- 0001X
- 0002A
- 0002W
- 0002X
- 0003W

### Road Conditions:
- All
  - 1 - Pavement Bare and Dry
  - 2 - Pavement Bare and Wet
  - 3 - Snow on Pavement
  - 4 - Ice on Pavement
  - 5 - Slush on Pavement

### Weather Conditions:
- All
  - 1 - Clear Skies
  - 2 - Partly Cloudy
  - 3 - Cloudy
  - 4 - Rain
  - 5 - Freezing Rain
  - 6 - Sleet
  - 7 - Light Snow
  - 8 - Heavy Snow

### Time/Report Status:
- Any
  - Less than 1 hour
  - 1+ hours
  - 2+ hours
  - 4+ hours
  - 6+ hours
  - 8+ hours
  - 12+ hours
  - 16+ hours

[Reset] [Get Road Conditions]
MaineDOT GeoTOPS® Development - Upcoming

**Next Steps - Requirements:**
- Field device control
- Generate new incident response management plans on the fly
- Real-time service patrol/emergency vehicle tracking
- Generate incident metrics
- Monitor personnel load density
- Integration with MaineDOT GIS portal environment
Contacts and Questions

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