Clarus & RITIS

Integrating & analyzing Clarus data with other transportation data sets.

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CATT Laboratory
The Regional Integrated Transportation Information System (RITIS)

- Fusing, Disseminating, & Archiving Transportation Data from Six States
- Situational Awareness
- Performance Measures & Visual Analytics Tools

Users Include:
- DOTs
- Transit Providers
- Metropolitan Planning Organizations
- Emergency Management Agencies
- FEMA
- US Army, Air Force, & NorthCom
- U.S. Secret Service
- U.S. Capitol & Park Police
- Fire & Rescue
- Law Enforcement
- NSA
- US Office of Personnel Management
- 3rd Party Trav Info Providers
- University Researchers

www.cattlab.com
RITIS Components

• Three main components
  1. Real-time data feeds
     • For integrating RITIS data into your own system
  2. Real-time web site
     • For those who don’t have their own systems
     • For those who don’t want to integrate
     • Will be modified for the media and the public
  3. Data Archive
     • Performance Measures
     • Analysis and Studies
     • After Action Reviews

Our focus for today
Our REAL Challenge

• Our Challenge: Make ALL of this data easily accessible, usable, and understandable to end users and ITS applications...

• Our “Design Mantra”
  – Towards no user manuals...
  – Visually pleasing...
  – Web accessible...
  – Useful!!!
  – Afford freedom to explore...
  – Overview, Zoom, Details on Demand
RITIS Website
Interactive RITIS Website

Transportation System Status | Address Book | Data Archive | Performance Measures | User Settings

Incident List | Traffic Map | RSS Incident Feed

Add Filter...

<table>
<thead>
<tr>
<th>Source</th>
<th>Location</th>
<th>Type</th>
<th>Updated</th>
<th>Lane Status</th>
<th>Start Time/Description</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDOT_CHART (new)</td>
<td>I-95 SOUTH PAST EXIT 50 M.M. 49.6</td>
<td>Disabled Vehicle</td>
<td>10/13/2010 8:45 AM</td>
<td>-</td>
<td>10/13/2010 8:31 AM</td>
<td>Display</td>
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<tr>
<td>MDOT_CHART (new)</td>
<td>I-95 SOUTH AT MP 55.7 (TOLL PLAZA) LANE 21</td>
<td>Injury Accident</td>
<td>10/13/2010 8:42 AM</td>
<td>South</td>
<td>10/13/2010 8:01 AM</td>
<td>Display</td>
</tr>
<tr>
<td>MDOT_CHART (new)</td>
<td>US 15 NORTH AT US 40</td>
<td>Injury Accident</td>
<td>10/13/2010 8:42 AM</td>
<td>-</td>
<td>10/13/2010 8:45 AM</td>
<td>Display</td>
</tr>
<tr>
<td>MDOT_CHART (new)</td>
<td>I-95 SOUTH PRIOR TO EXIT 64</td>
<td>Traffic Congestion</td>
<td>10/13/2010 8:42 AM</td>
<td>-</td>
<td>10/13/2010 6:49 AM</td>
<td>Display</td>
</tr>
<tr>
<td>VDOT_NOVA (new)</td>
<td>I-95 south @ MM 163.0 - SB 95 AT EXIT 163 LORTON : SDN VS TOW TK</td>
<td>Accident</td>
<td>10/13/2010 8:40 AM</td>
<td>South</td>
<td>10/13/2010 8:38 AM</td>
<td>Display</td>
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<tr>
<td>VDOT_NOVA (new)</td>
<td>I-66 west @ MM 57.1 - WB 66 AT MONUMENT</td>
<td>Disabled Vehicle</td>
<td>10/13/2010 8:38 AM</td>
<td>West</td>
<td>10/13/2010 8:26 AM</td>
<td>Display</td>
</tr>
</tbody>
</table>
Interactive RITIS Website
Weather Radar & NWS Alerts
CCTV Personal Video Wall
CCTV Personal Video Wall
CCTV Personal Video Wall
CCTV Personal Video Wall
Police, Fire, EMS, & Other Radio Feeds
Other Features

- Agency Emergency Contacts
- FITM Plans
- Evacuation Routes
- Detector Data Trends
- Comparative Speeds
- Queues
Adding the Clarus Data
Latest Progress

• ALL Clarus data integrated into RITIS
• Building applications for various user groups:
  – Real-time
    • Ops
    • Power Users
    • Travelers
  – Archive
    • Researchers
    • Planners
    • Etc.
= Low Visibility

= Slippery/Icy

= High Winds
Historical Data

- Performance Measures
- After Action Reviews
- Planning & Operations Research
- Safety Analysis
- Cost/Benefit Analysis

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Detector Data Analysis

Date Range: 03/09/09 00:00 to 03/09/09 23:59

- Occupancy
- Speed
- Vehicle Count
- Vehicles/Hour
Incident Heat Maps
Corridor Incident Locations
Bottleneck Analysis
Some examples: 

**Congestion Scan**

I-495
Beginning at: EXIT 27
Ending at: VA-123/CHAIN BRIDGE RD/EXIT 11

Thursday, Mar 12, 2009 (15 minute intervals)

Show Incidents

New Query

Data Options

<table>
<thead>
<tr>
<th>Reference Speed</th>
<th>% Avg. Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 - 15</td>
<td>15 - 25</td>
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<tr>
<td>20 - 30</td>
<td>30 - 45</td>
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<tr>
<td>40 - 50</td>
<td>50 - 65</td>
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<td>70 - 85</td>
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<tr>
<td>80 - 85</td>
<td>80 - 90</td>
</tr>
</tbody>
</table>

Start Time: [ ] [ ] [ ]
End Time: [ ] [ ] [ ]

[Disabled Vehicle Event @ I-495 INNER LOOP AT US 29]

Thu, Mar 12, 2009 4:50 PM
Max Lane Closures: none reported

Time: 4:47 PM
Speed: 33-60% reference

[Map of I-495 with overlay of traffic conditions]
Making Use of the Archive

• Visual Analytics: What they are? How are the different?

• Examples...
Clarus in the Archive
Choosing a Station
Exploring the Data

CLARUS History Explorer

Data for station I-83 @ I-695 between August 26 12:00 PM and August 28 8:00 AM

Nearby speeds

Number of active traffic events
Multivariate Relationships
Next Steps

• Refine/Enhance visual tools: Speed, functionality, etc.

• MORE data integration: Radar, AVL, etc.

• More Vis tools:
  – Spiral Charts
Questions

For additional information contact

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Demo Links

- Clarus Data Viz Demo
- Spiral Demo
- RITIS (production)
- RITIS (staging)
- ArcChart