Expanding a Condition Reporting System into a Statewide TMS

The New York State Thruway Authority TMS Deployment

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Presentation Outline

- NY State Thruway Authority (NYSTA)
- CARS - Condition Reporting System
- Expanding CARS to a TMS
- *Inputs:* CAD, Automated Traffic Reports
- *Outputs:* HAR/LPFM, DMS, Messenger

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New York State Thruway Authority

- 641 Miles of Roadway
- 5 Major Metro Areas
  - Albany
  - New York City
  - Syracuse
  - Rochester
  - Buffalo
- One Statewide Operations Center

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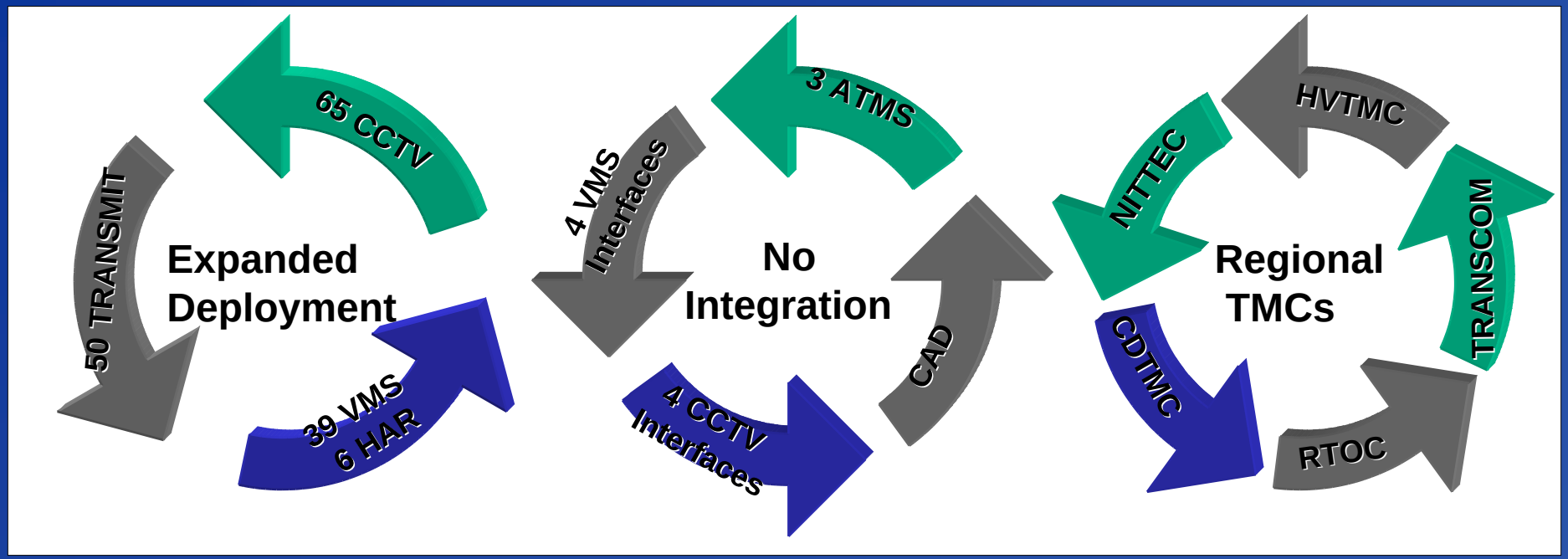
Problem: Stovepipe Systems



Need for NYSTA ATMS

- Manage ITS Infrastructure/ Traveler Info
- Manage incidents from CAD
- Need for single operator interface

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Solution: CARS Consortium

- 1999: 4 States: IA, MN, WA, MO
- 2006: 18 Agencies: AK to FL; ME to NM
- State, Province and City

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CARS Consortium

- Pooled Fund - shared ownership
- Joint Developments / Enhancements
- No licensing or “per user” fees

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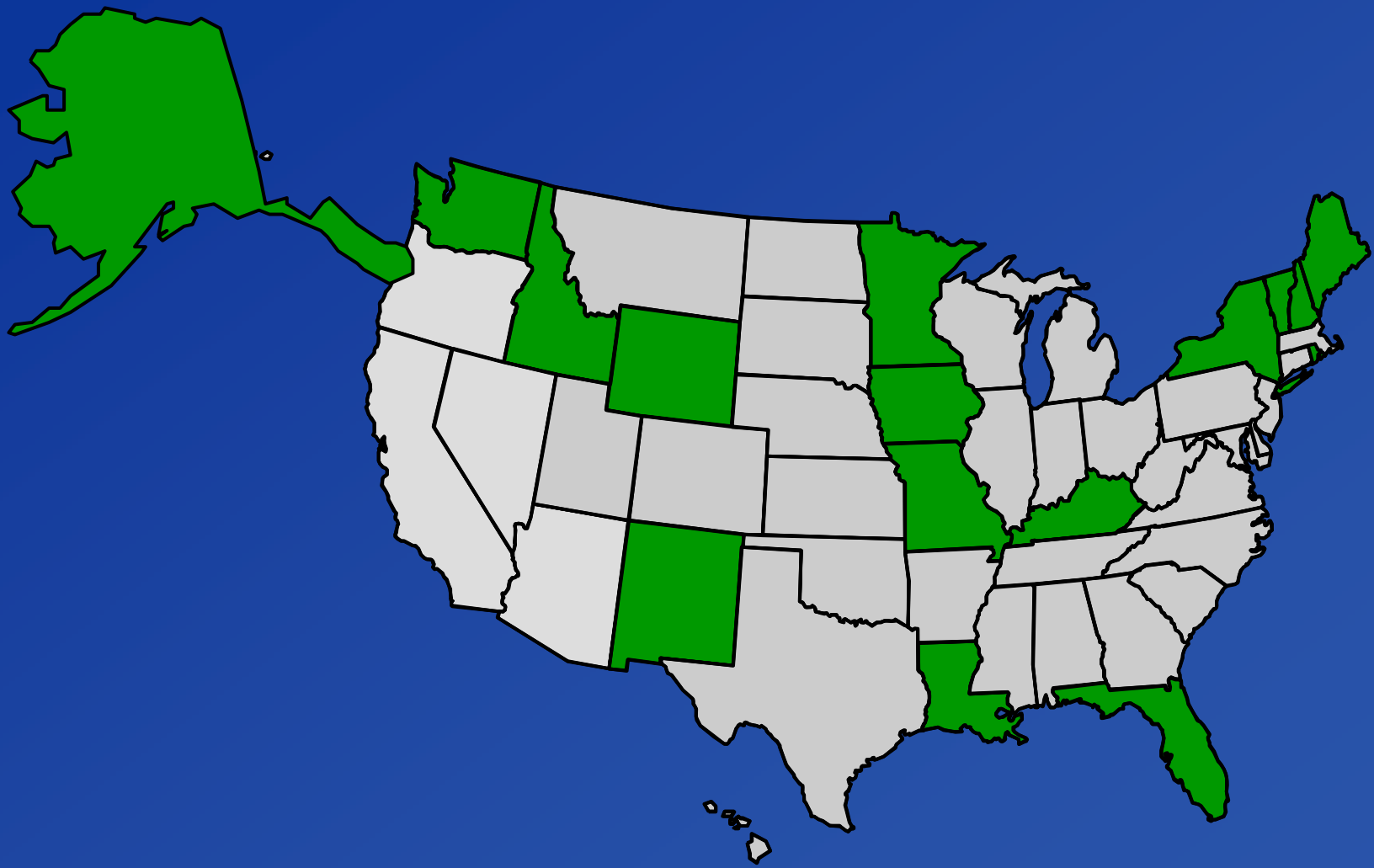
CARS States - 2006



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What is CARS?

- Condition Acquisition and Reporting System
- Create, view, edit, and monitor travel events
- Map-based GUI
- Web-based: no special hardware or software
- Uses TMDD Standards for data exchange

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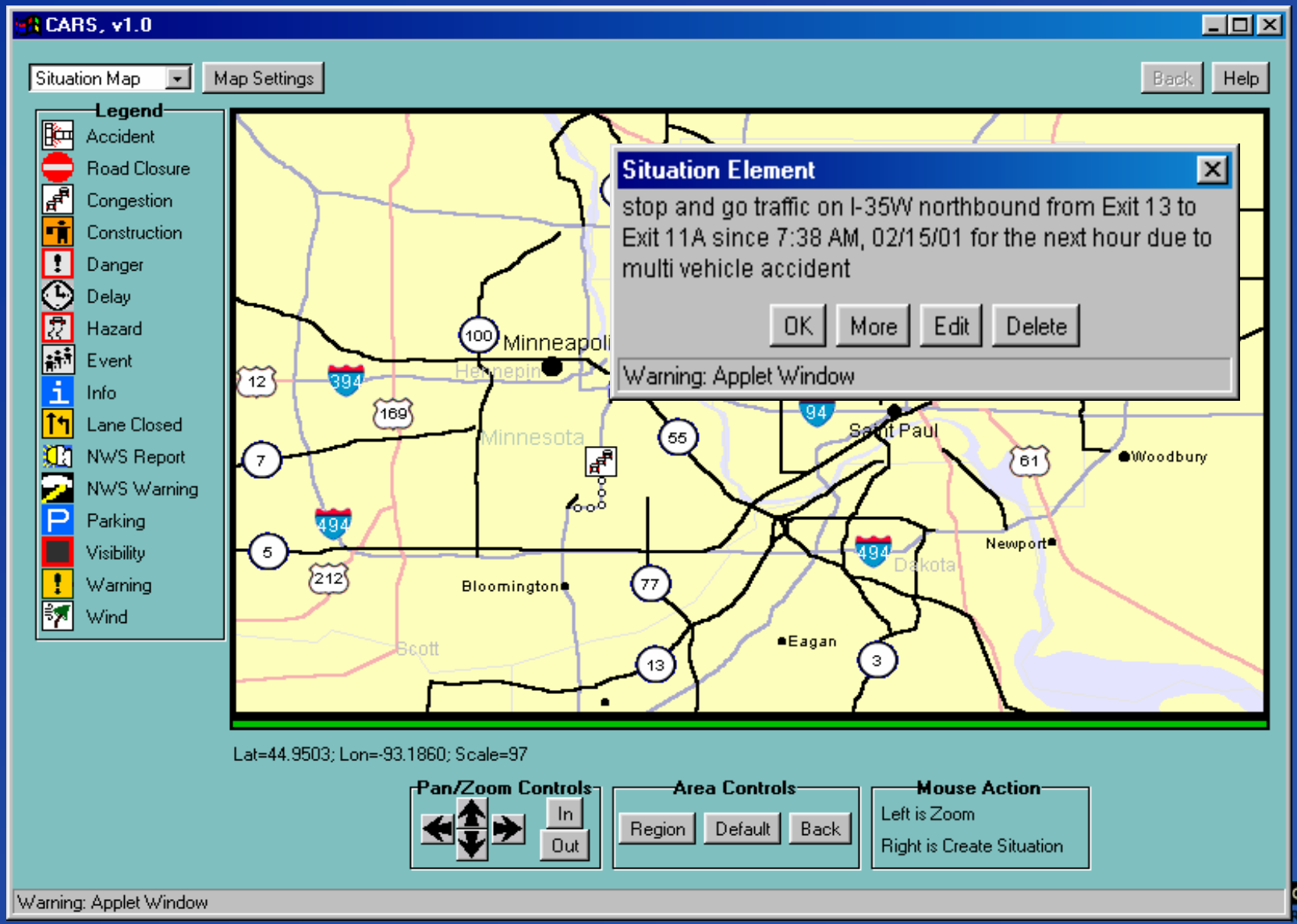
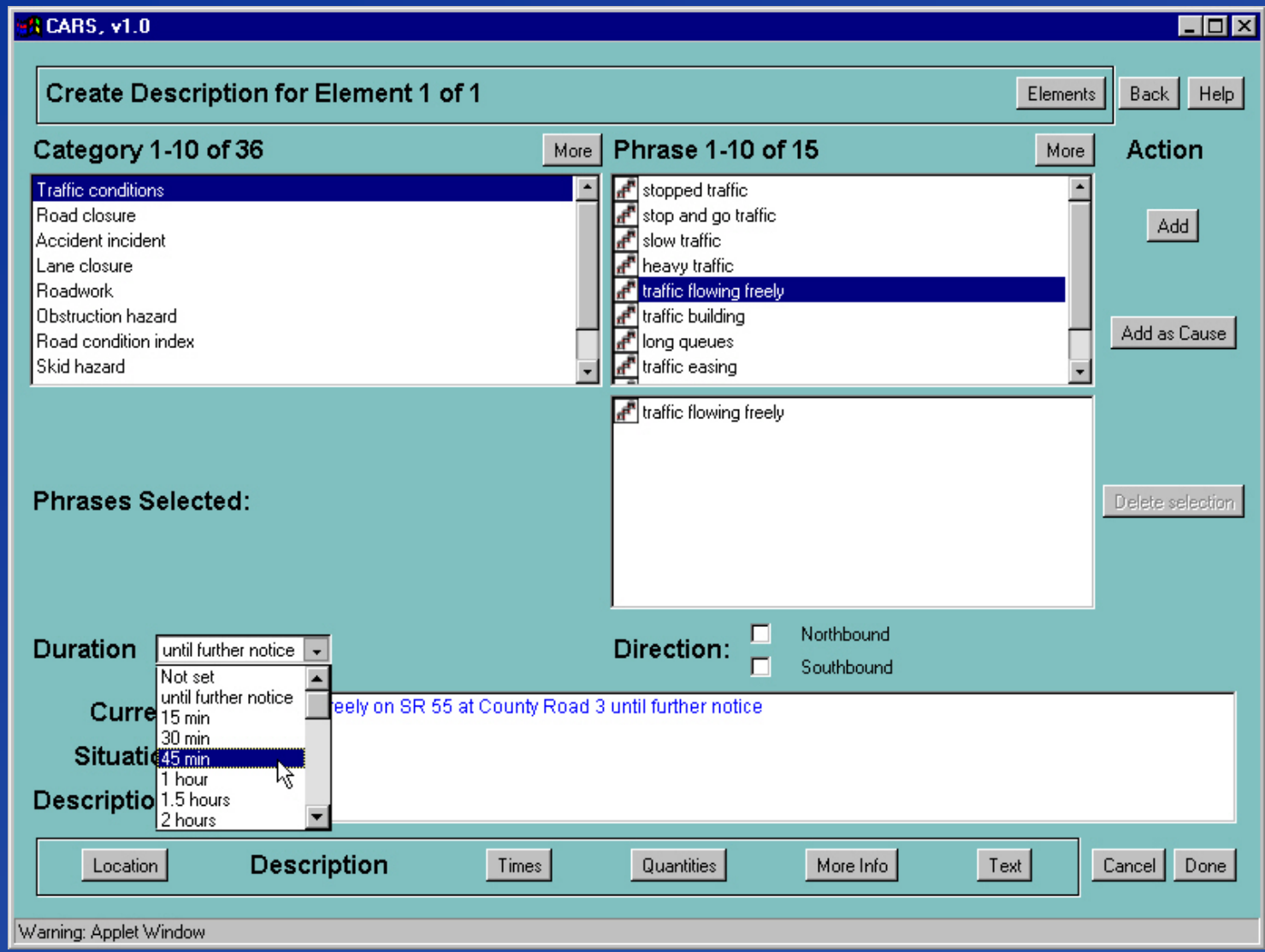
CARS GUI


CARS, v1.0
Situation Map
Map Settings
Back
Help
Legend
Accident
Road Closure
Congestion
Construction
Danger
Delay
Hazard
Event
Info
Lane Closed
NWS Report
NWS Warning
Parking
Visibility
Warning
Wind
Situation Element
stop and go traffic on I-35W northbound from Exit 13 to Exit 11A since 7:38 AM, 02/15/01 for the next hour due to multi vehicle accident
OK
More
Edit
Delete
Warning: Applet Window
Minneapolis
Hennepin
Minnesota
Saint Paul
Woodbury
Bloomington
Eagan
Newport
Dakota
Scott
Lat=44.9503; Lon=-93.1860; Scale=97
Pan/Zoom Controls
In
Out
Area Controls
Region
Default
Back
Mouse Action
Left is Zoom
Right is Create Situation
Warning: Applet Window

Data Entry – Point and click



CARS in New York State

- New York State Department of Transportation (NYSDOT)
- Joined CARS Consortium in 2004
- CARS, CARS-Web
- Data Exchange with NYSTA & other Regional Agencies

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NYSTA CARS Deployment

- CARS
- CARS-CAD
- CARS-Signs
- CARS-CCTV
- CARS-RWIS
- CARS-Traffic
- CARS-Messenger

CARS-TMC

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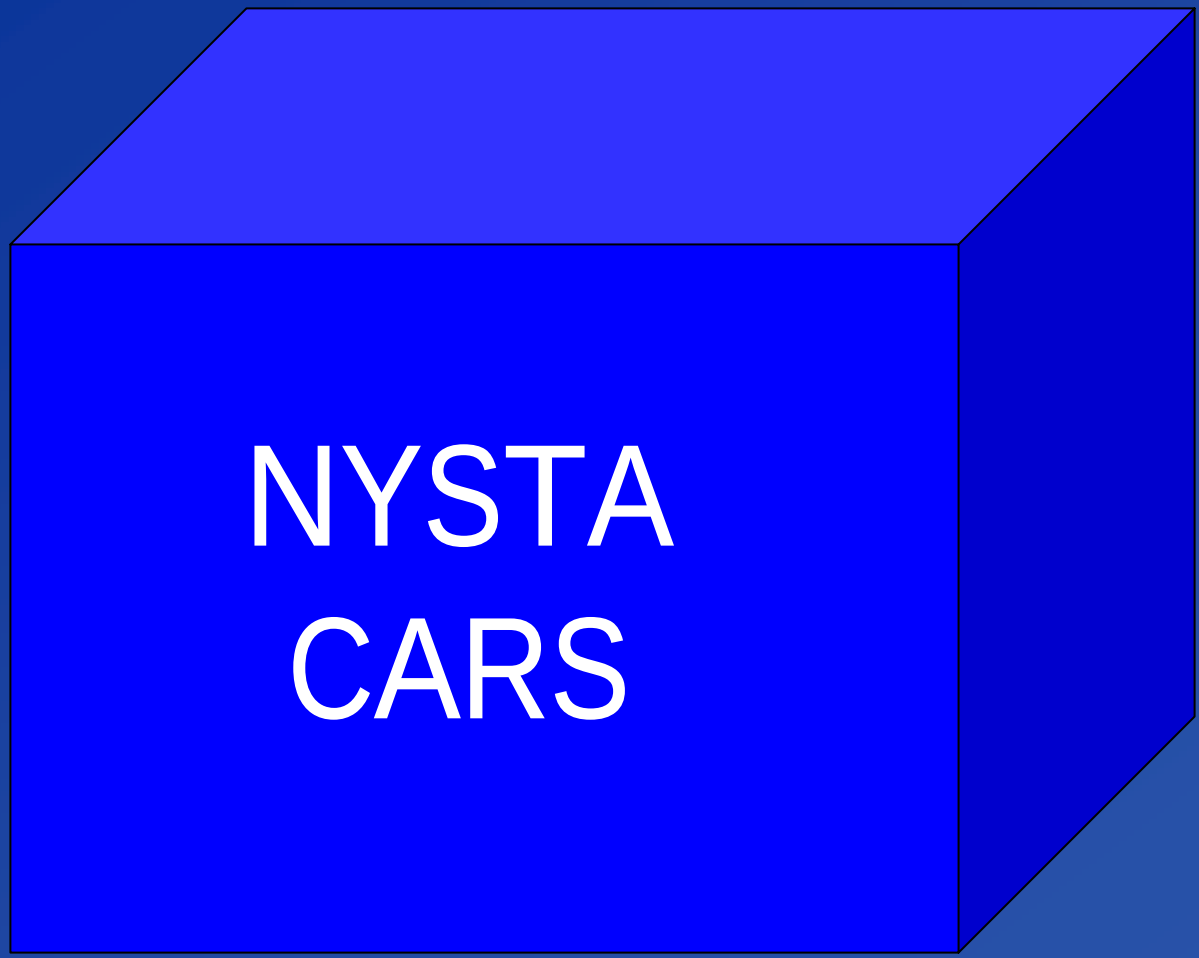

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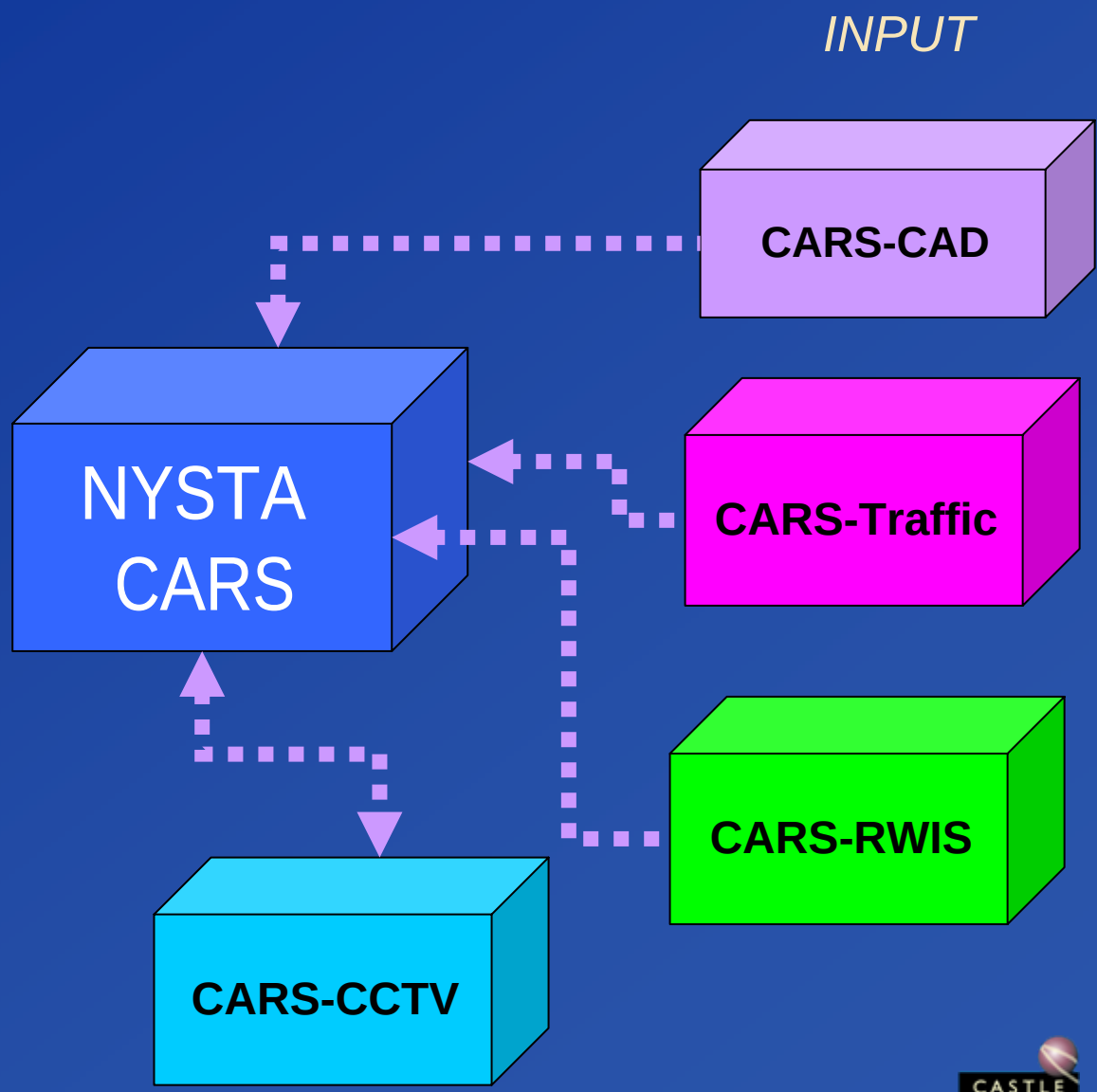
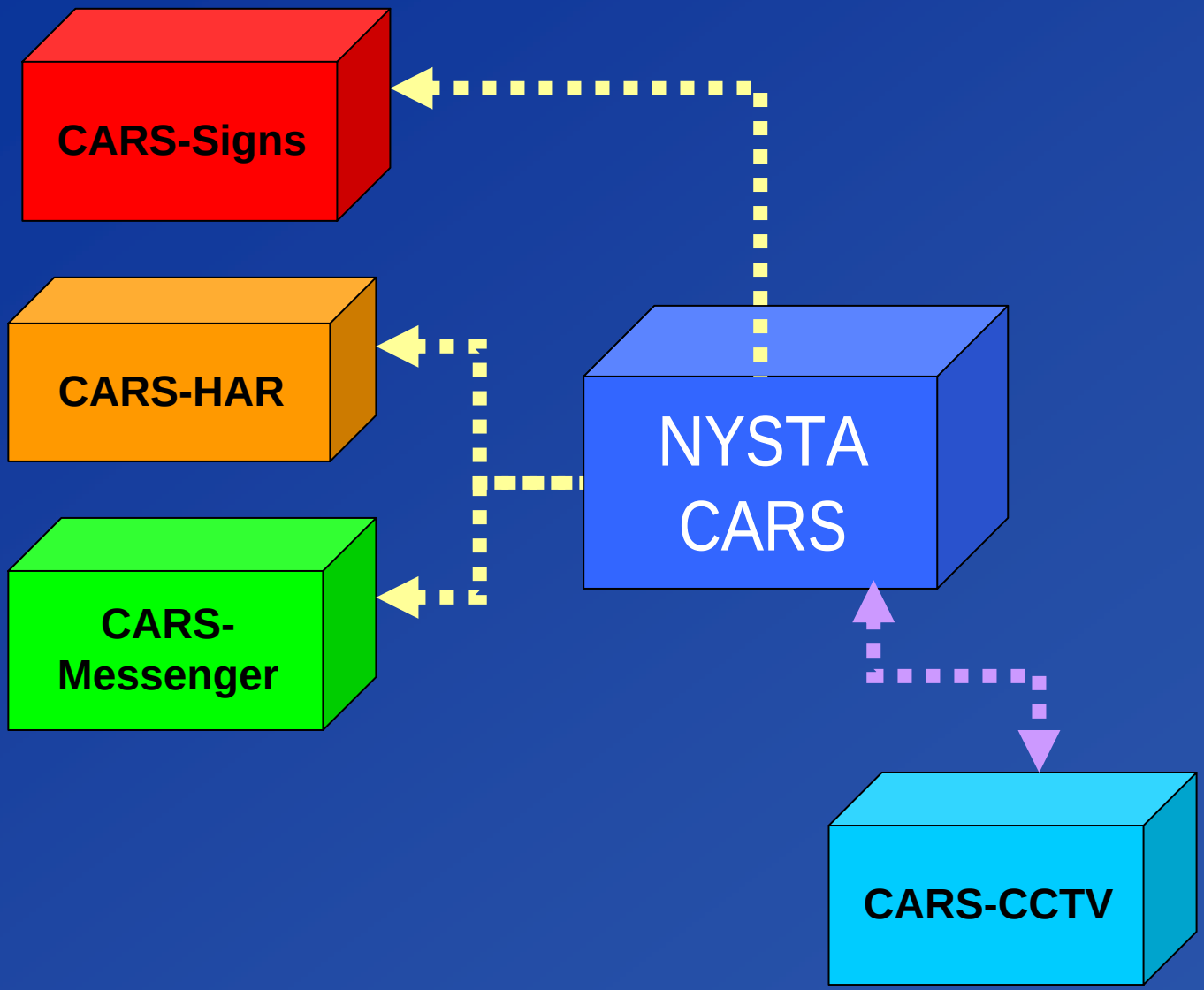
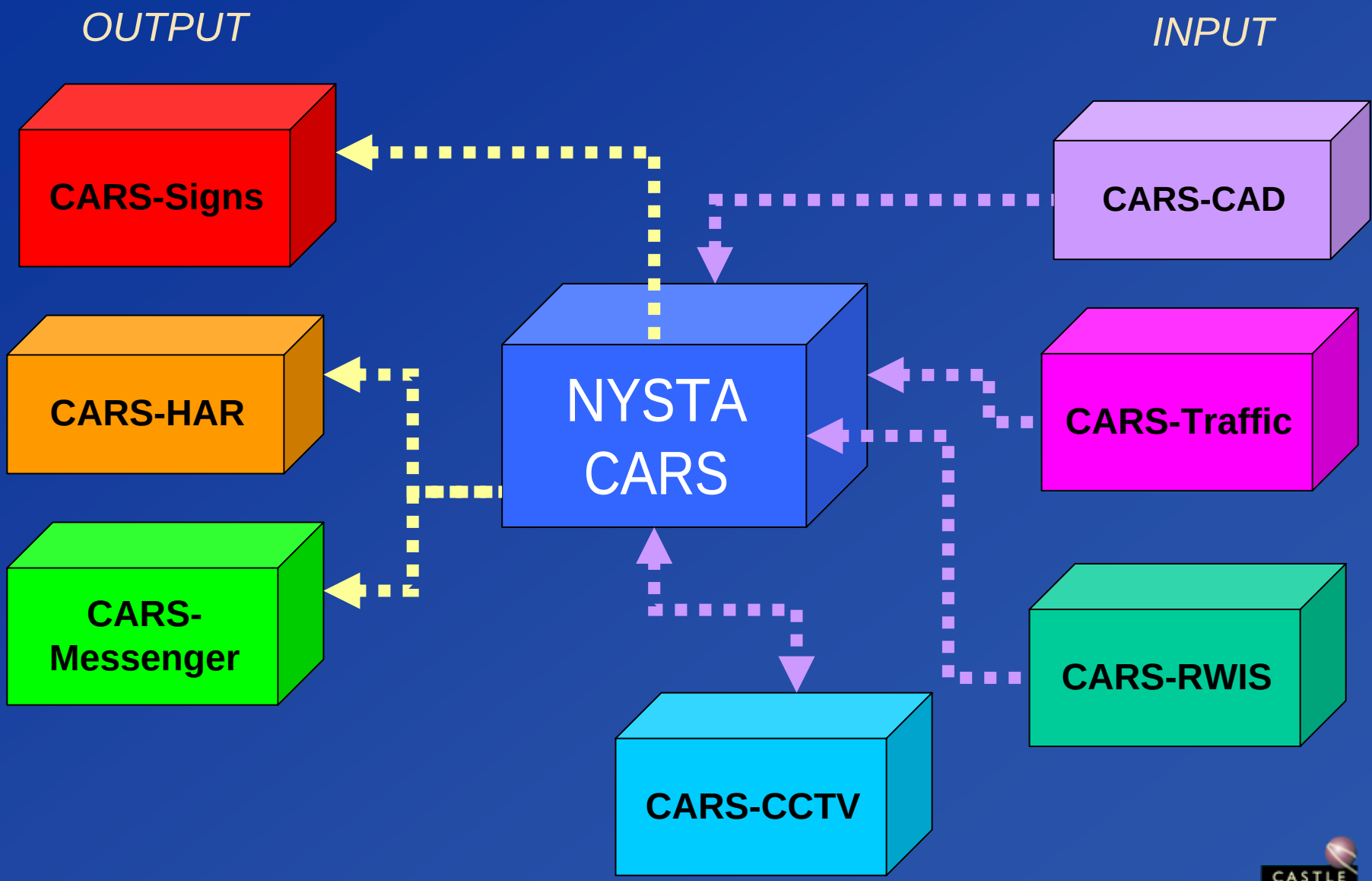
Information Collection Modules



Information-Sharing Modules



From Condition Reporting to TMS



CARS-CAD

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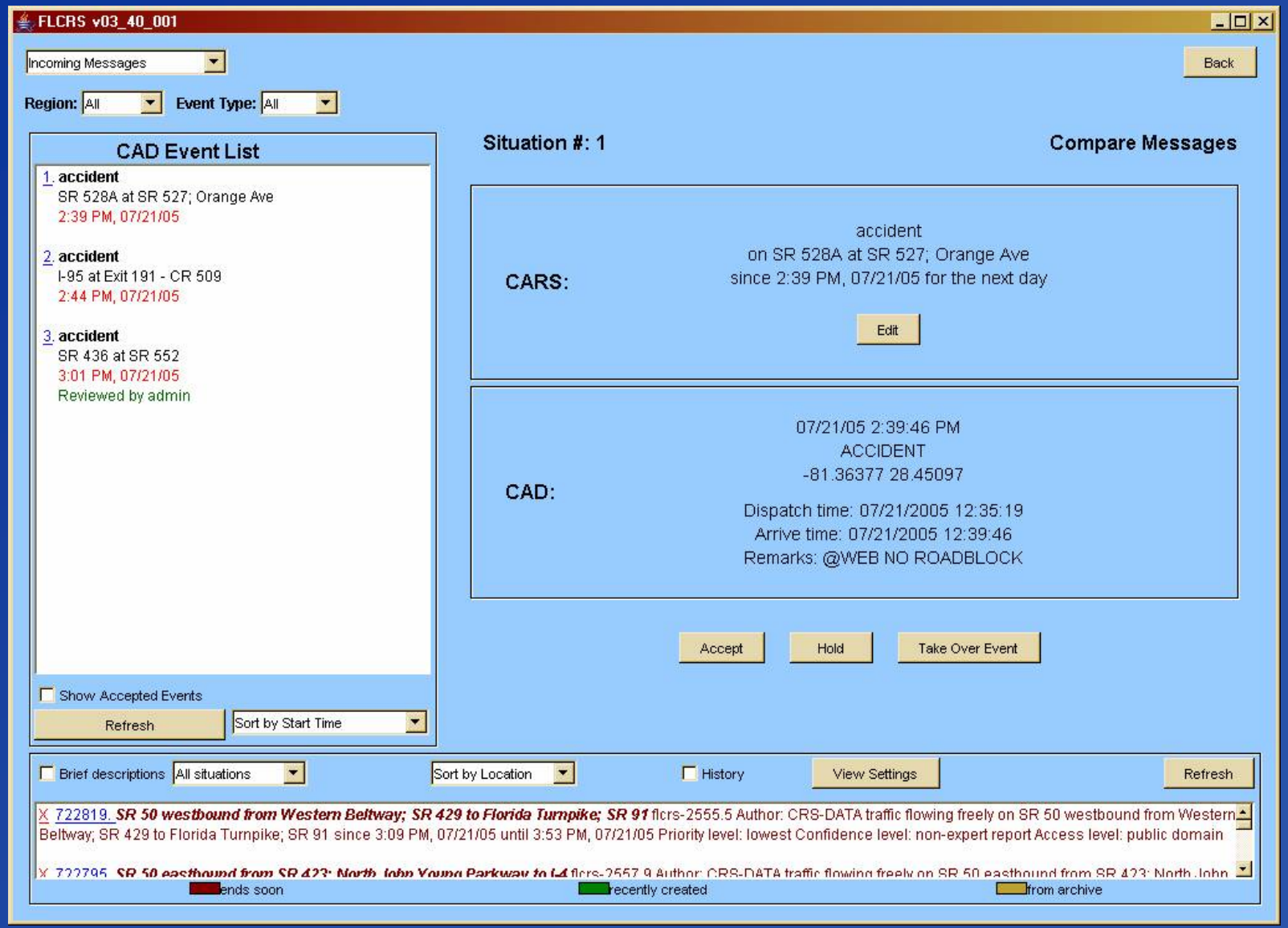
CARS-CAD Event Verification Screen



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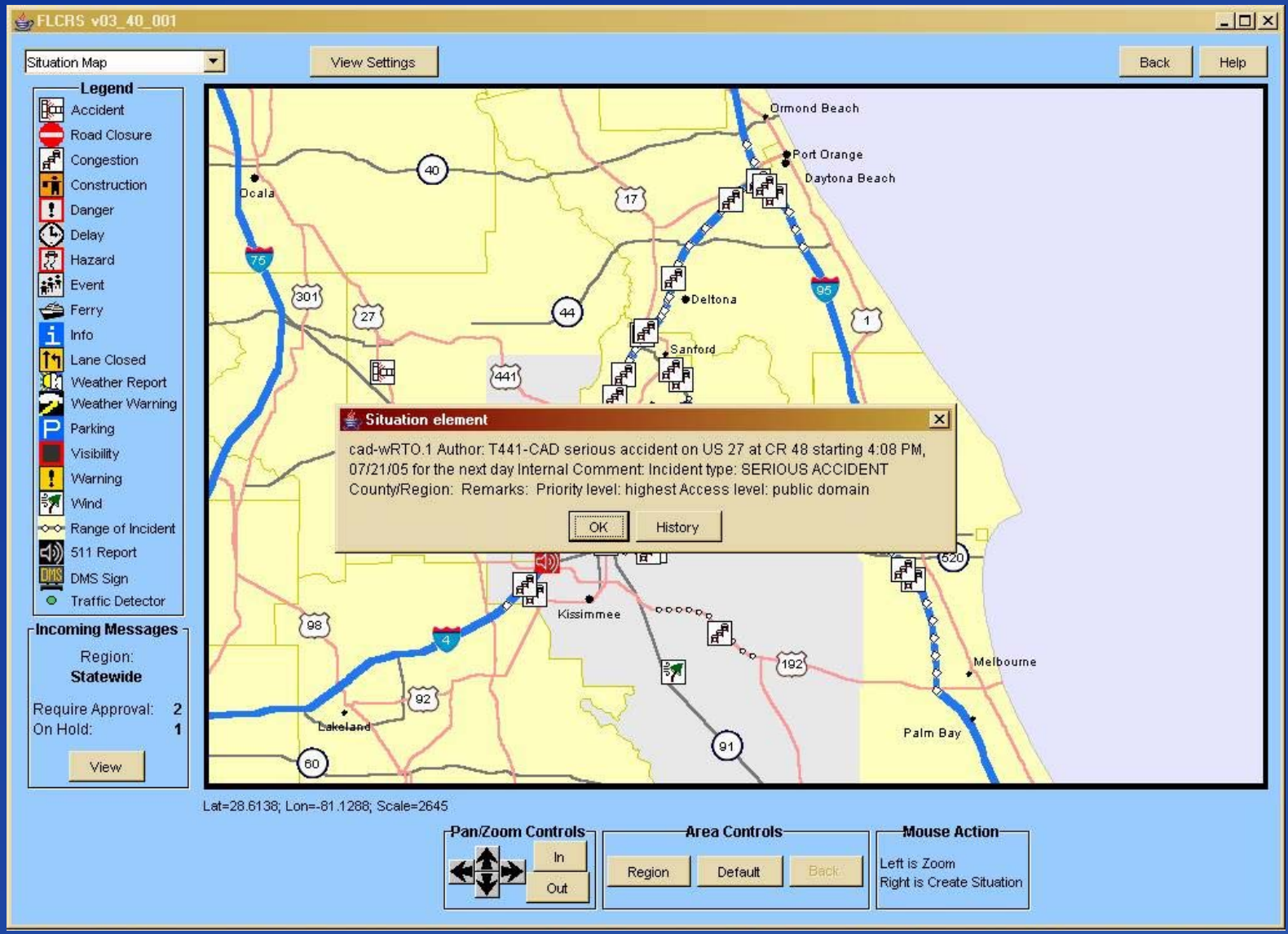
CAD Events in CARS



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CARS-Traffic

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CARS-Traffic Concept

- Data Input
  - Loops
  - Radars
  - Toll tag readers
  - License plate readers

- Information Output
  - Speed Reports (e.g., “slow traffic”)
  - Travel Times

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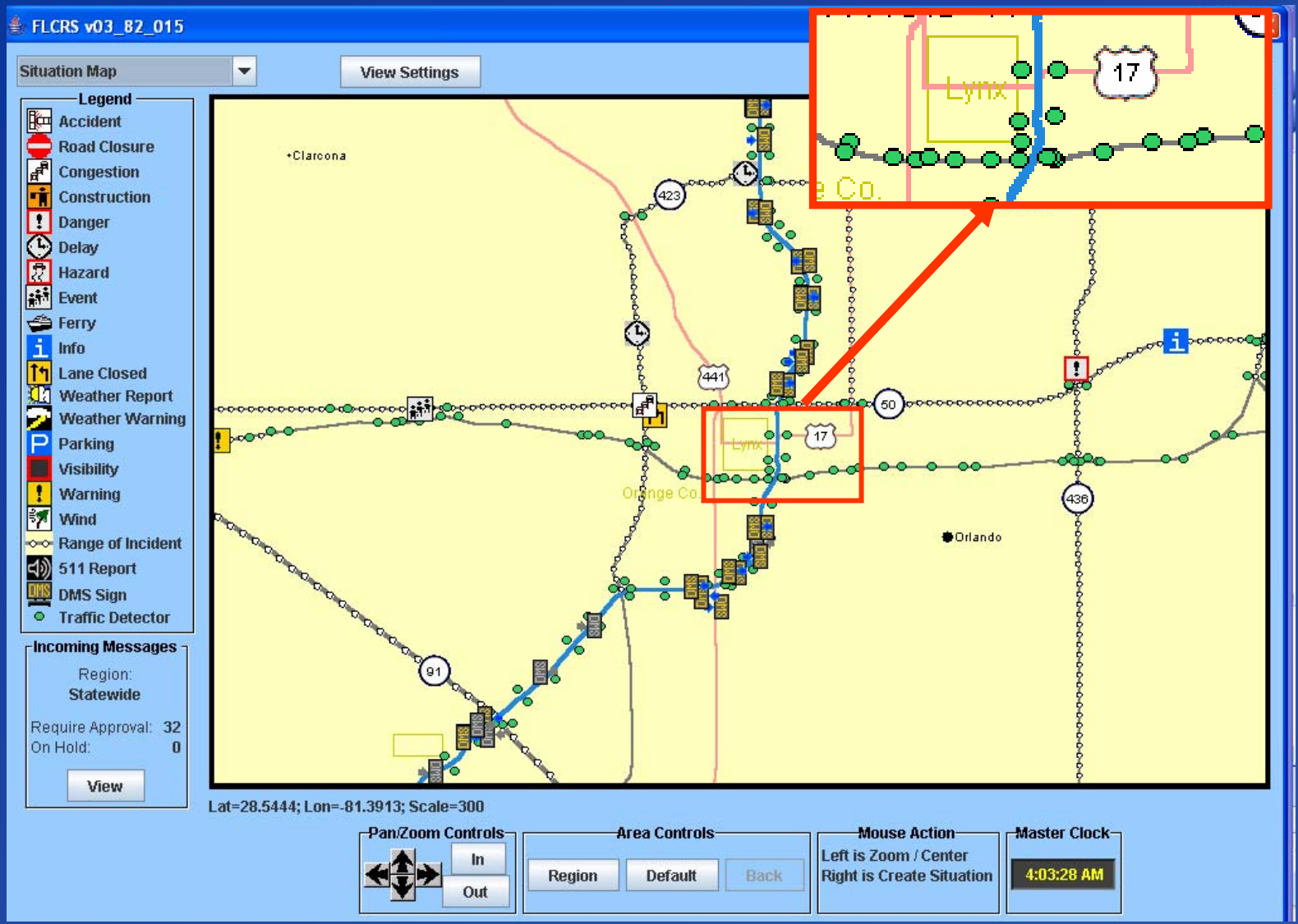
CARS-Traffic Operator GUI



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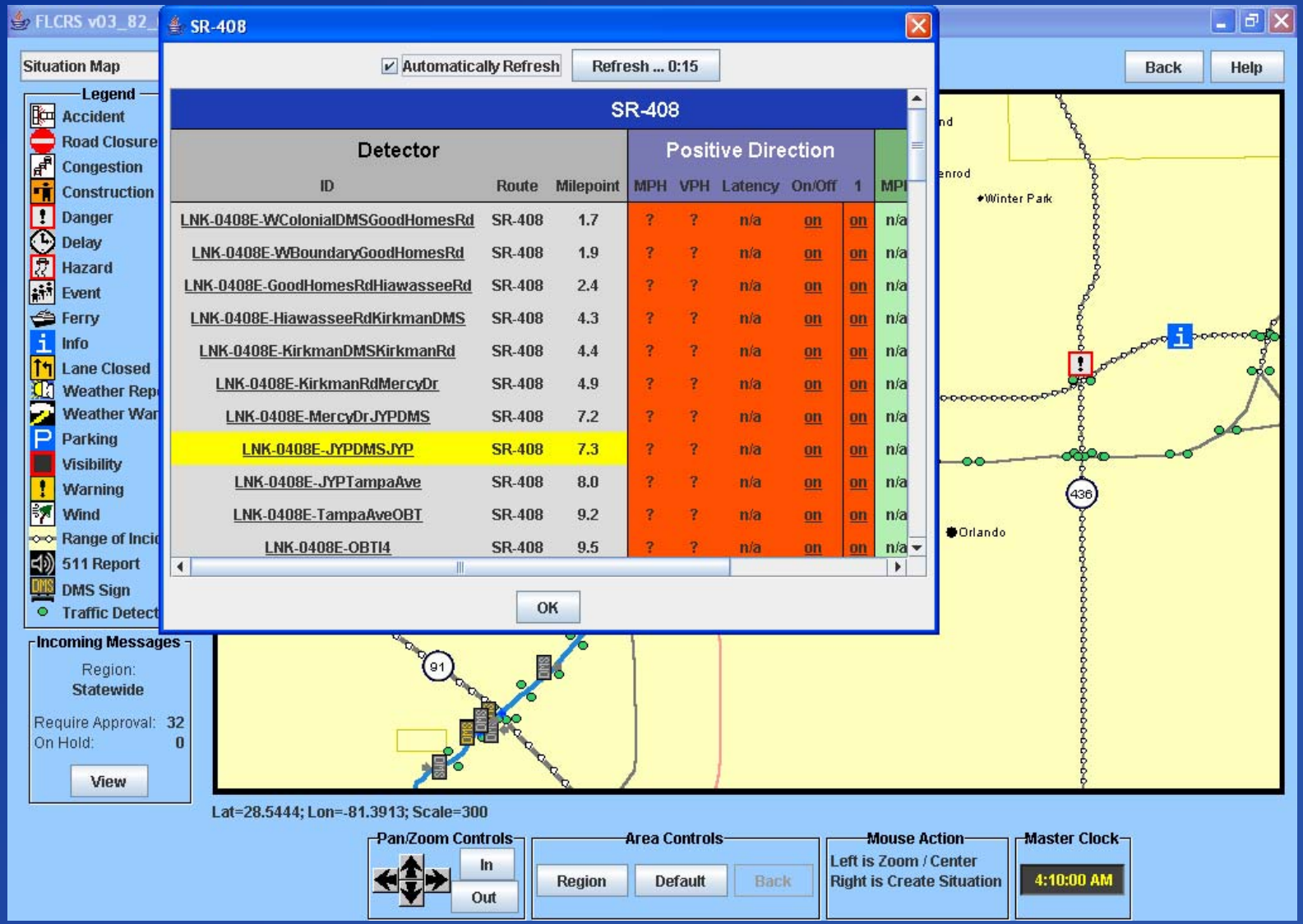
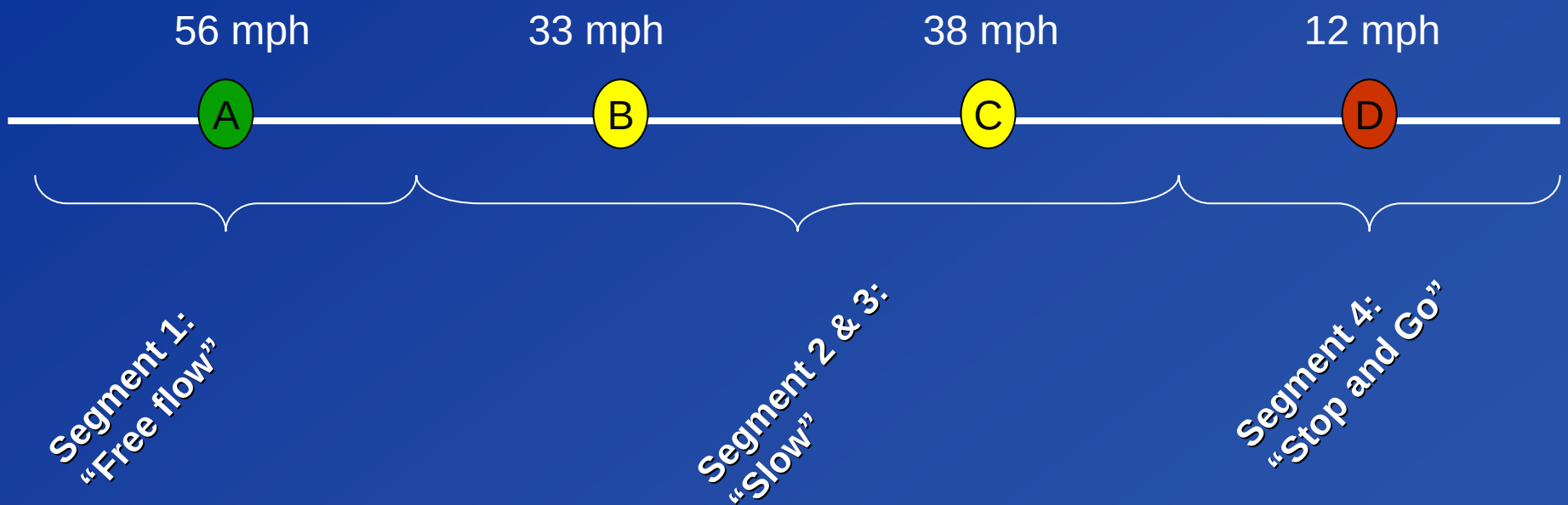
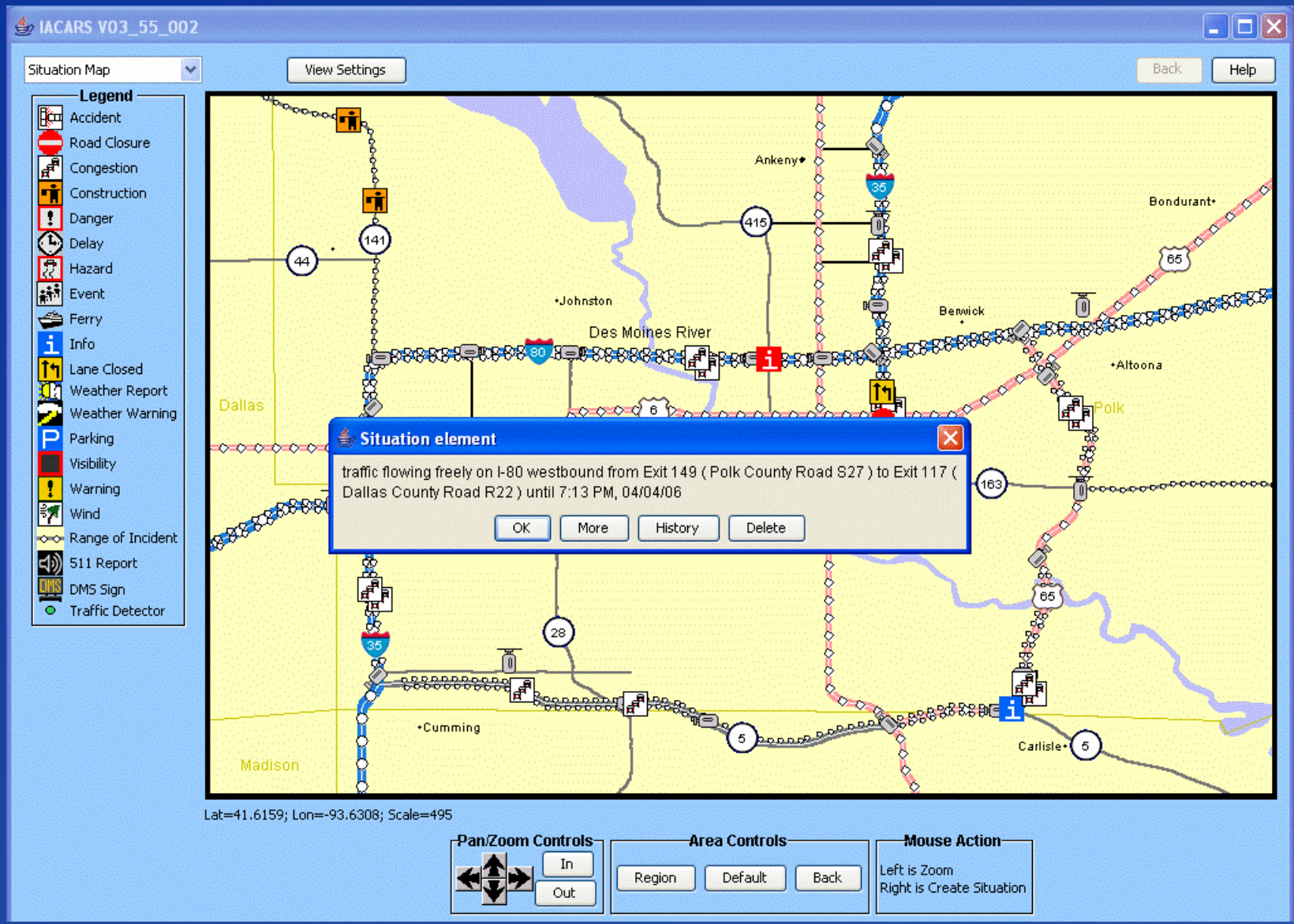
CARS-Traffic Operator GUI



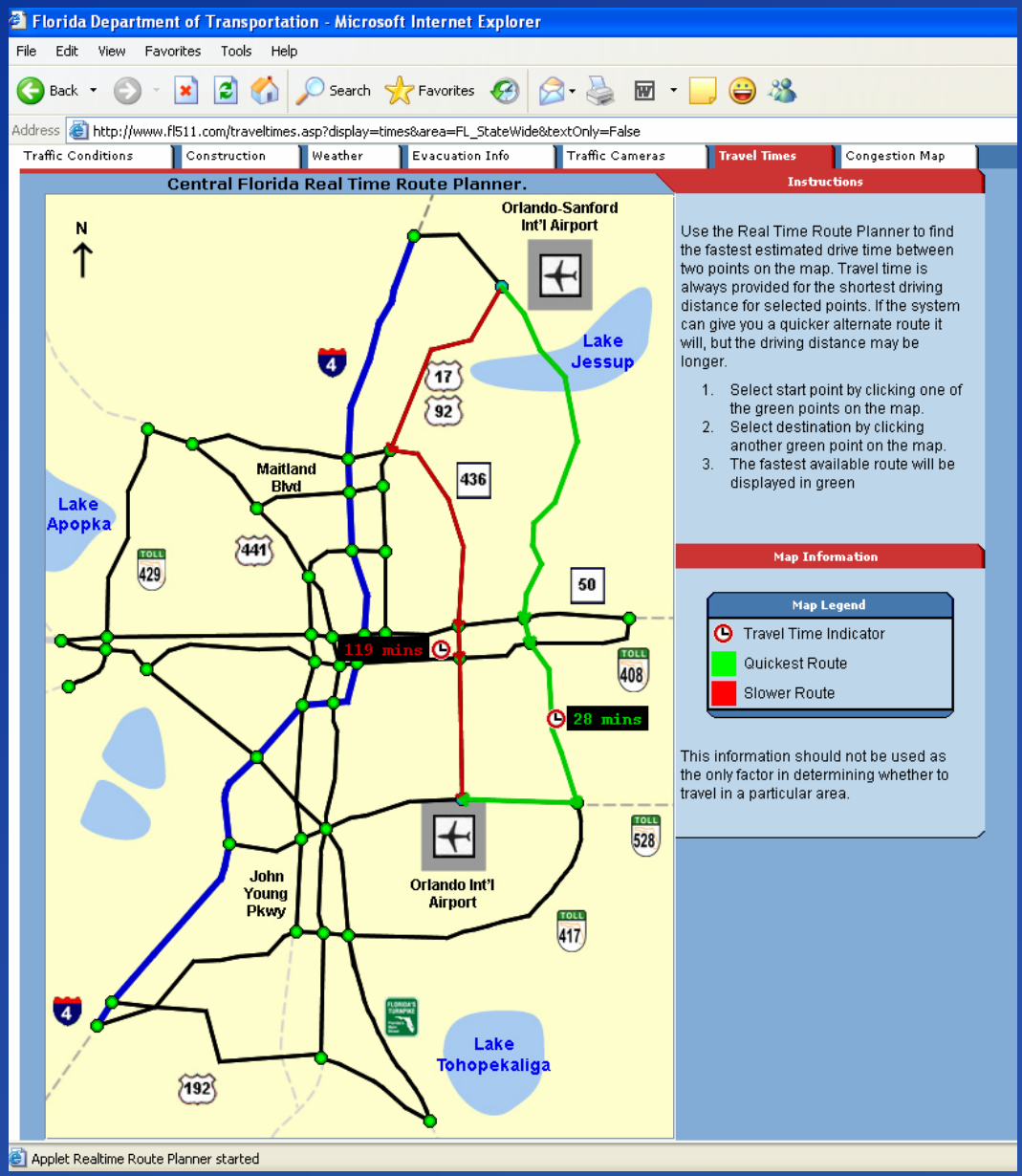
Through-traffic algorithm



CARS-Traffic Speed Reports



CARS-Traffic Travel Times



CARS-RWIS

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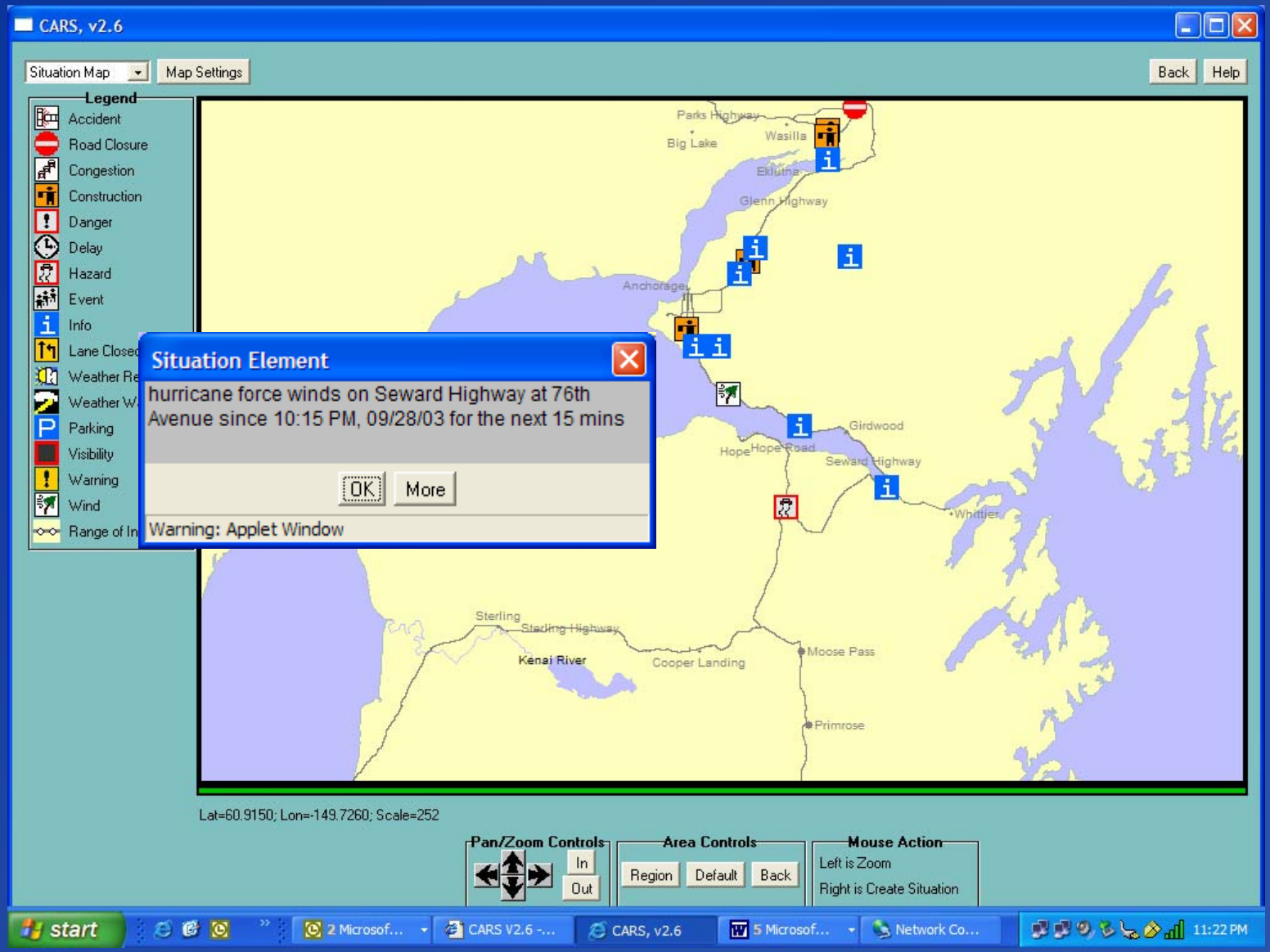
CARS-RWIS Weather Reports



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CARS-CCTV

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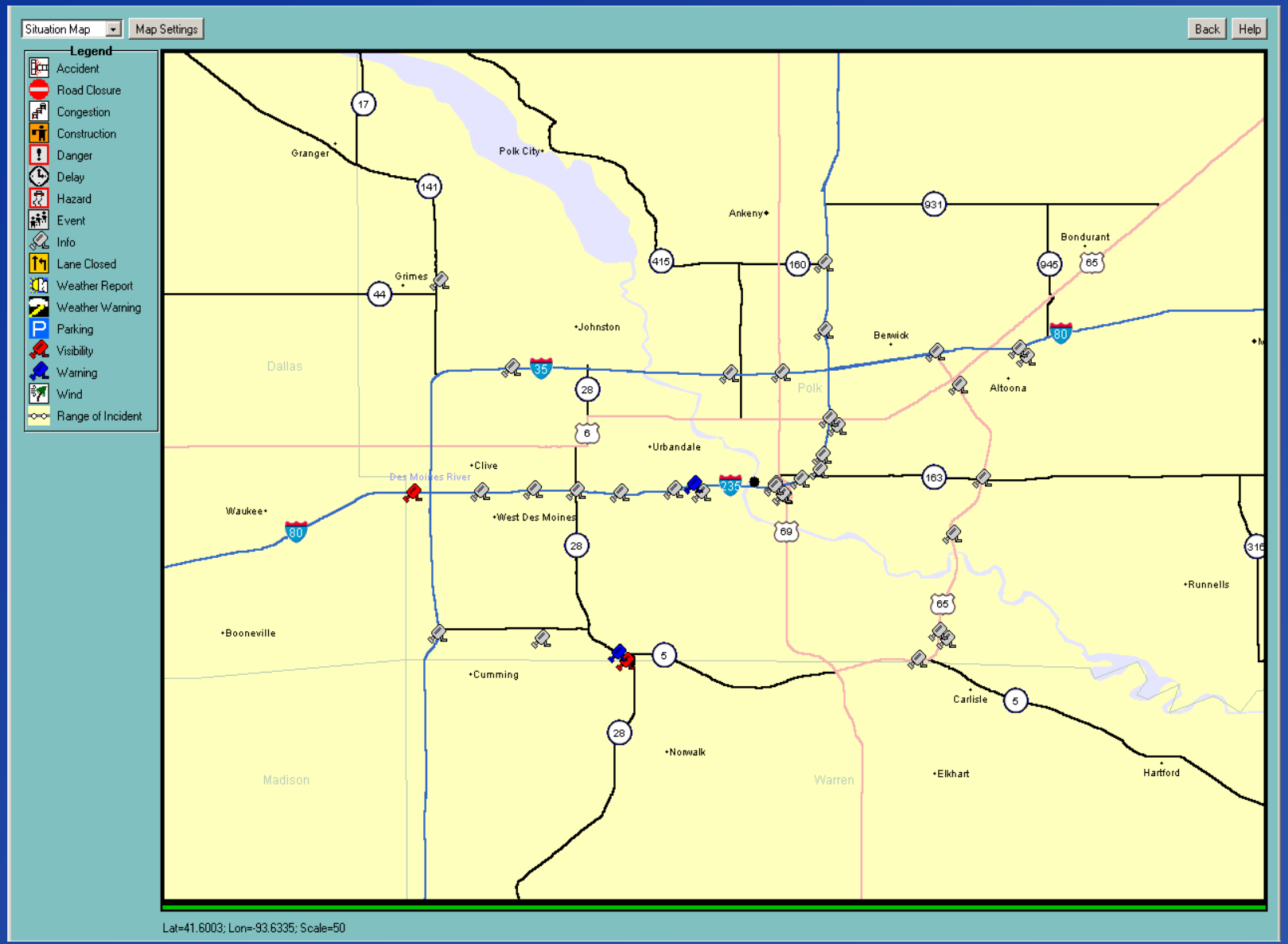
CARS-CCTV GUI



CARS-CCTV Camera Control

Rubber-banding Navigation

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Camera / Event Integration

- Create, edit, delete events from the CARS-CCTV GUI
- CARS-CCTV “knows” locations from camera positions

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CARS-Signs

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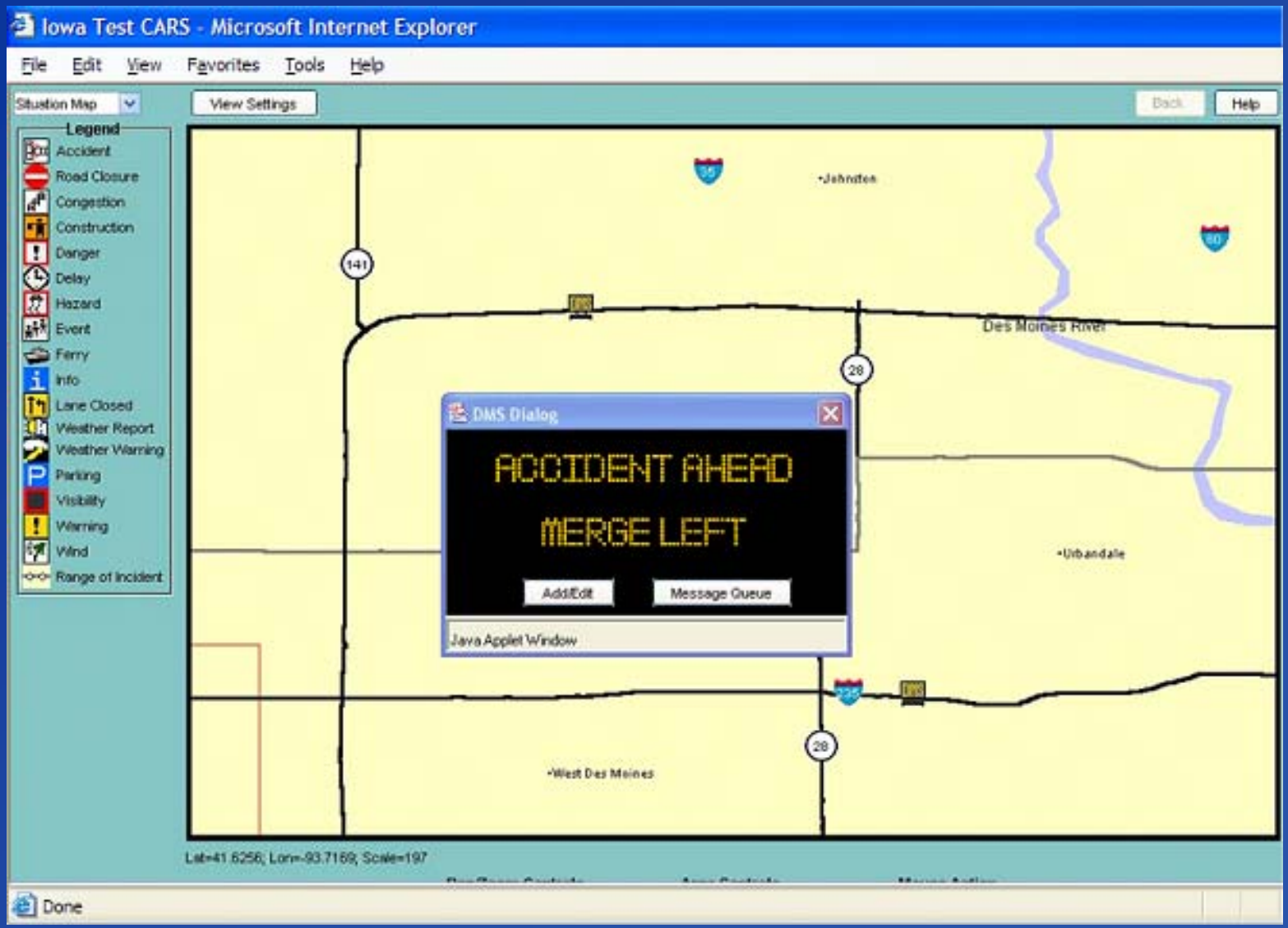
CARS-Signs GUI



CARS-Signs Decision Support

Events Entered Manually or Automatically

Triggers Decision Support

CARS Event
“Bridge Closure”

XML Message to DMS Central Server

DMS Central Software

Message Posted

DMS Plan Recommendation

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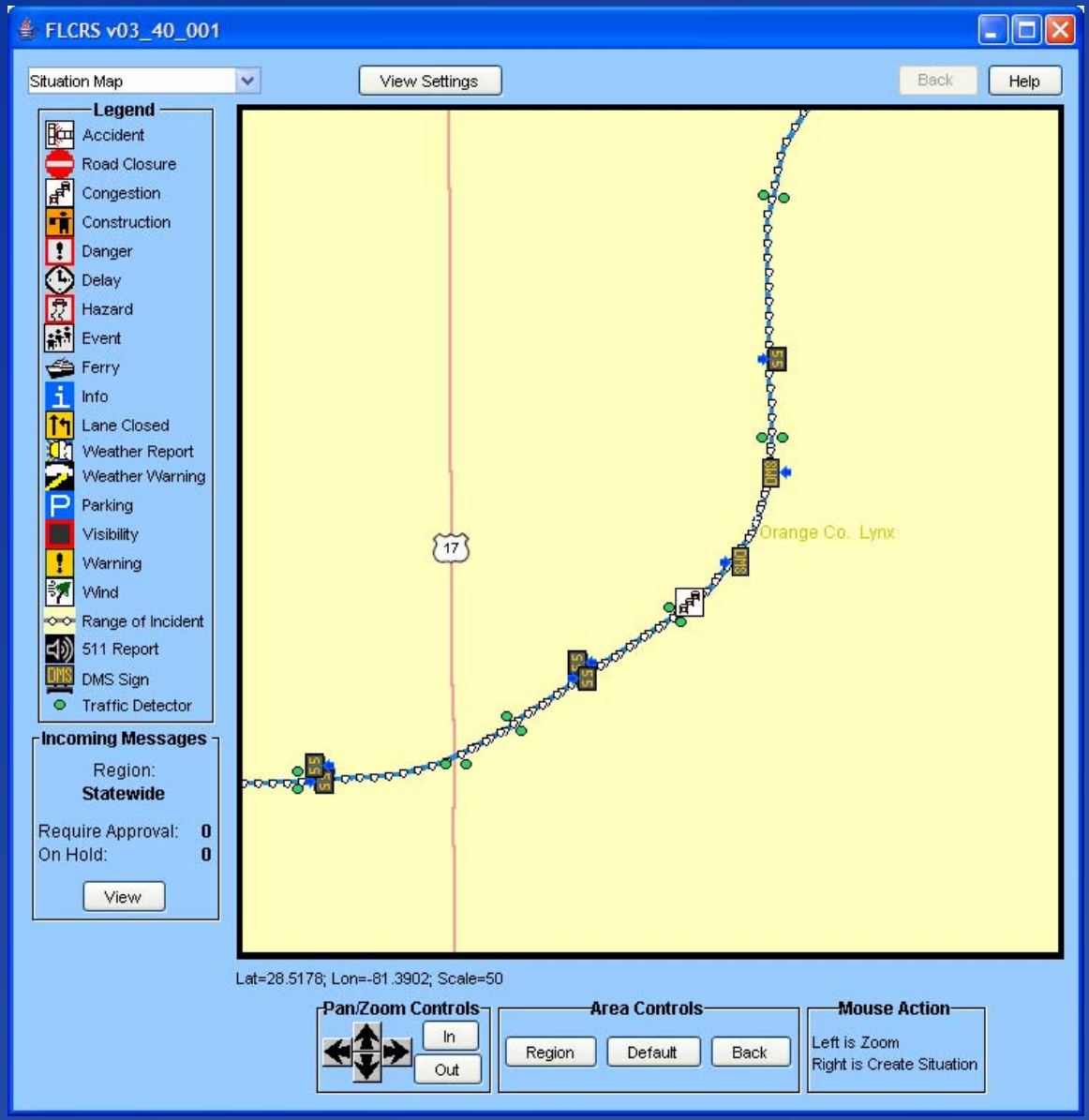
CARS-Signs VSL Integration



VSL Plans

- Heavy Traffic VSL Plan
- Adverse Weather VSL Plan
- Accident / Incident Plan
- Construction / Manual

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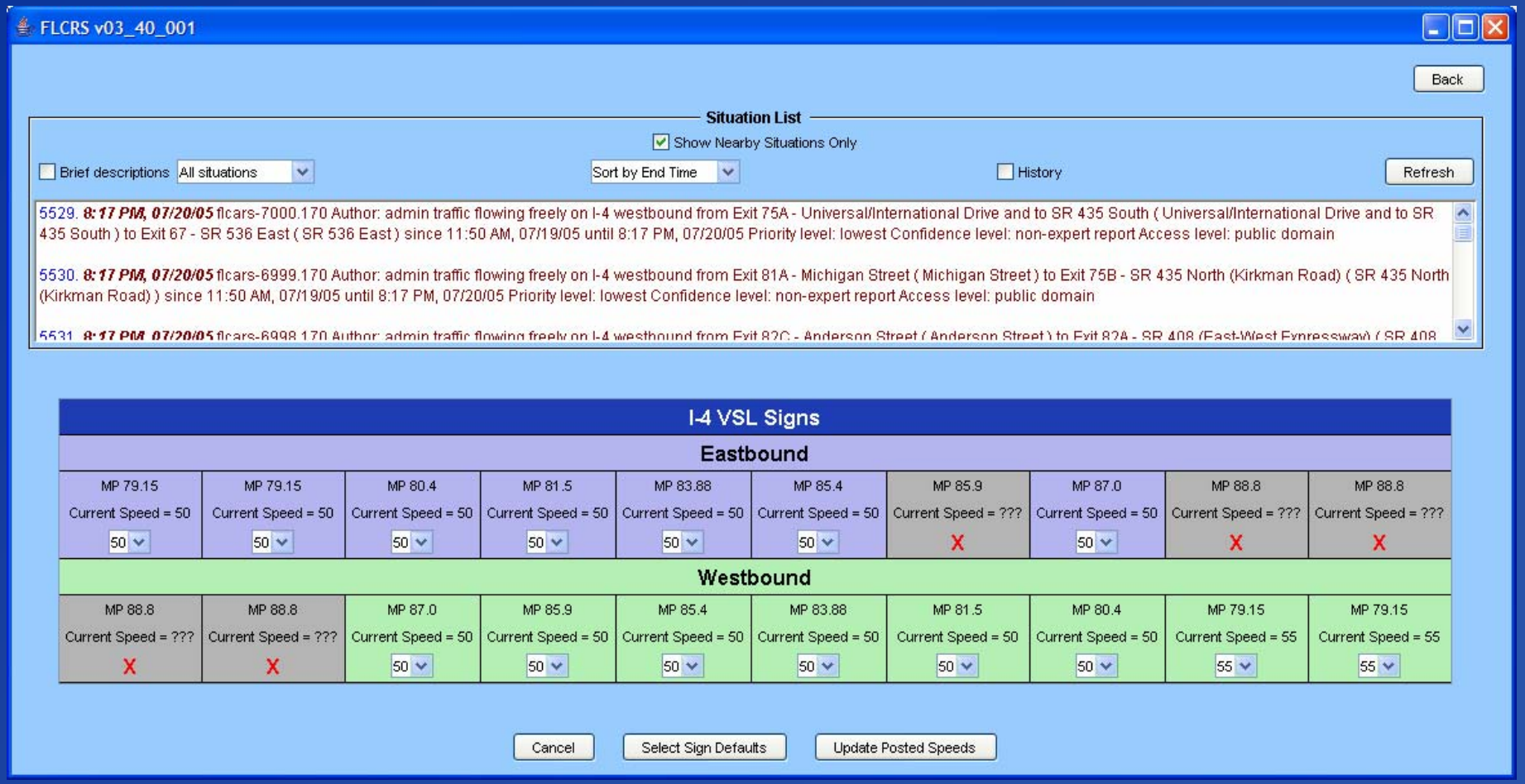
CARS-Signs VSL GUI



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CARS-Radio

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Browser-based
CARS data entry

CARS

Automated,
Custom,
Live Content for
HAR/LPFM

No new data entry

CARS-Radio

CARS-Messenger

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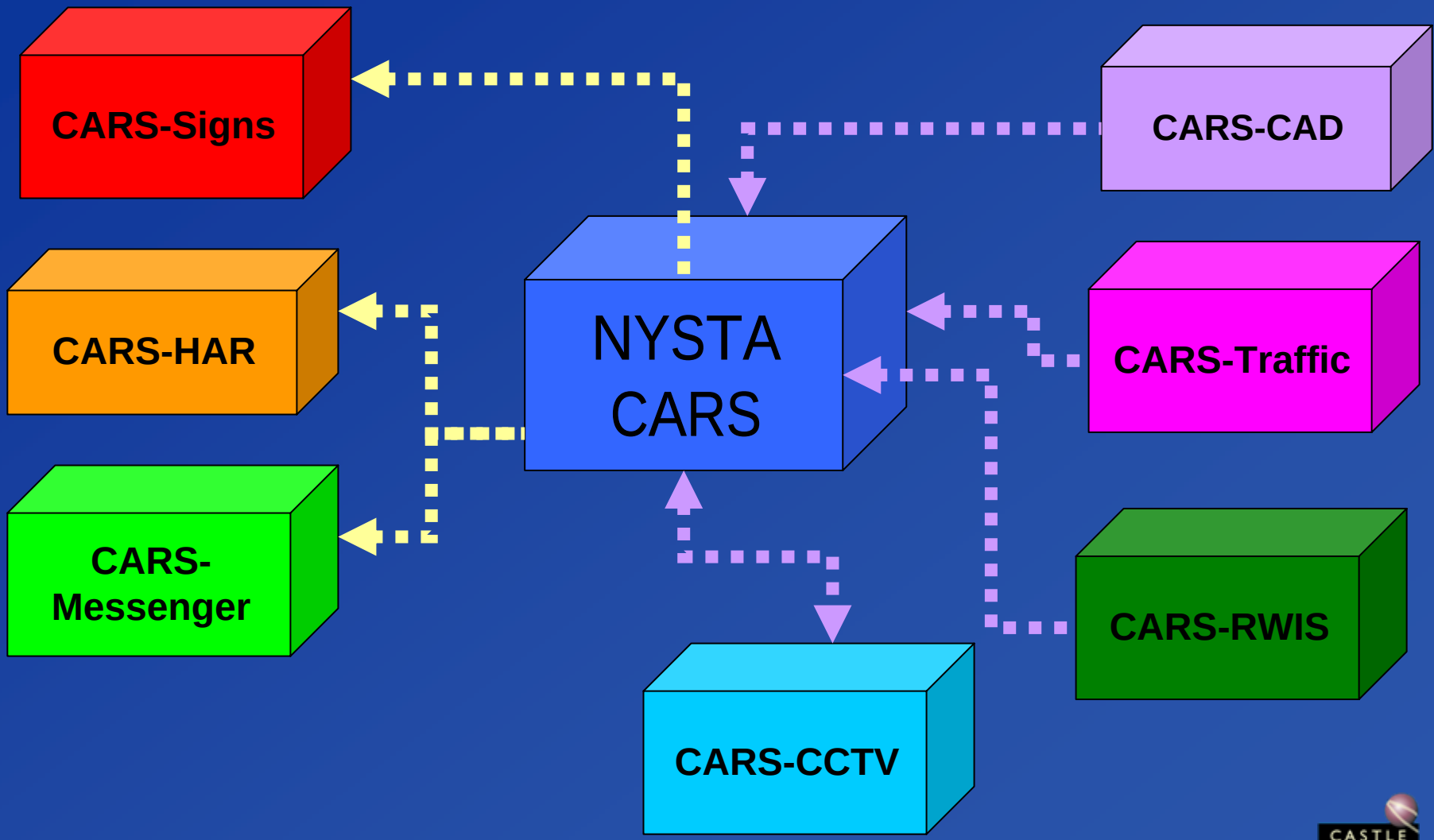
CARS-Messenger

Information Collection and Information Sharing



Summary

- NYSTA CARS: From Condition Reporting System to Traffic Management System
- Module-by-Module
- CARS Consortium Pooled Fund

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