From Integrated Corridor Management to Integrated Regional Management Dallas Experience

November 20, 2015

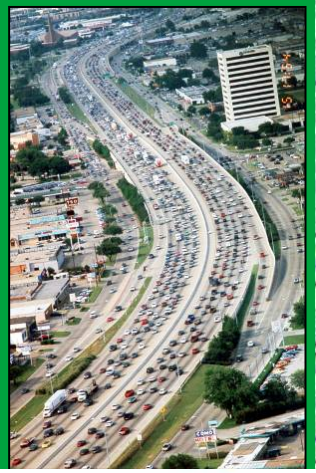
Schneider Electric

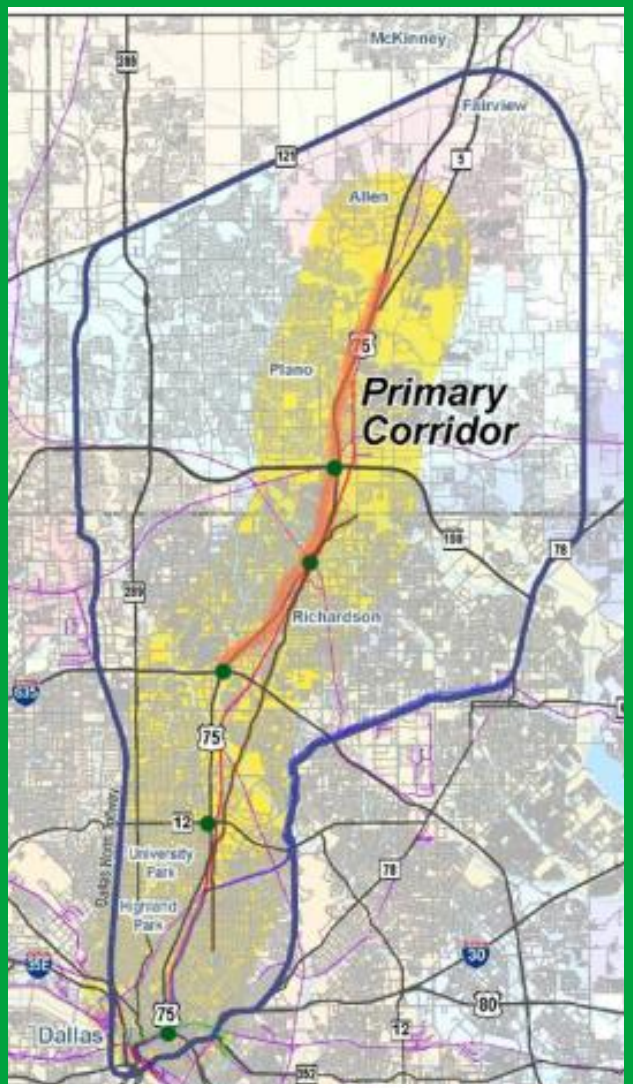
US DOT ICM Pioneer Sites

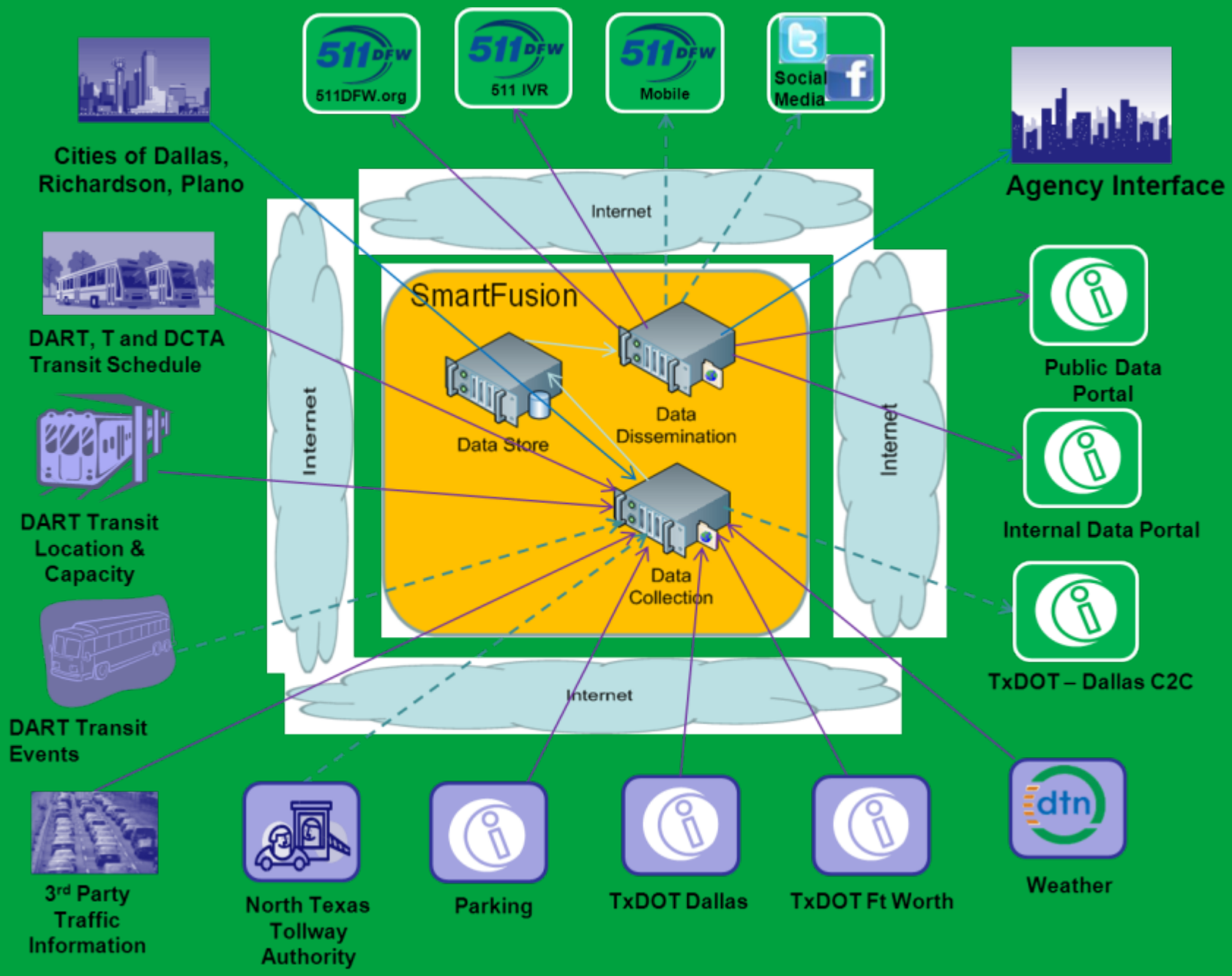
13 Additional ICM Planning Sites Selected Including; NYC and Buffalo.

US 75 Corridor Networks

- Freeway with continuous Frontage Roads
- Managed HOV lanes
- Dallas North Toll way
- DART Bus and Ligh Rail Network
- Three Cities, 900 Signals, 167 Miles of Arterials
- Multiple TMCs
- Regional ATIS






511DFW.org
511 IVR
Mobile
Social Media
Cities of Dallas, Richardson, Plano
Agency Interface
Internet
SmartFusion
Data Store
Data Dissemination
Data Collection
Internet
Internet
Internet
DART, T and DCTA Transit Schedule
DART Transit Location & Capacity
DART Transit Events
3rd Party Traffic Information
Public Data Portal
Internal Data Portal
TxDOT – Dallas C2C
North Texas Tollway Authority
Parking
TxDOT Dallas
TxDOT Ft Worth
dtn
Weather

Dallas ICMS Architecture- operations

DSS Sub-System

- Expert Rules
- Prediction
- Evaluation

SmartNET (EcoTrafiX) Sub-System

- DSS Dialogue
- SmartNET (EcoTrafiX)
- ICM Coordinator
- Agency User
- Agency Administrator

511DFW

- Public Web
- IVR
- Public XML
- Trip Planner
- Social Media
- My511 - Alerts
- Mobile Application

SmartFusion Sub-System

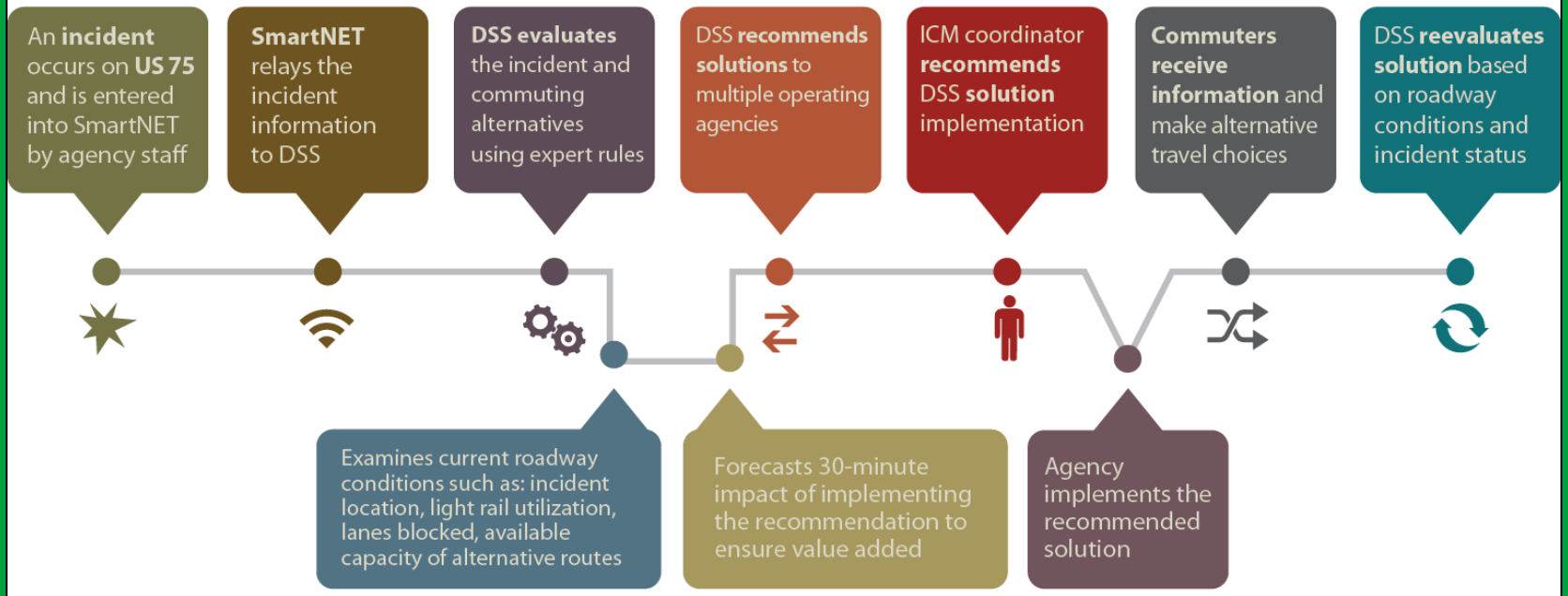
Collection & Fusion platform

- C2C
- DART Events
- AVL/APC
- DART GTFS
- Weather
- NAVTEQ Arterials
- Parking Management
- TxDOT XML (HOV)

Integrated Corridor Management (ICM) Decision Support System (DSS)

Alternatives for Agencies, Options for Commuters When Incidents Occur on US 75

THE PROCESS



THE BENEFITS

Improved travel time reliability for commuters

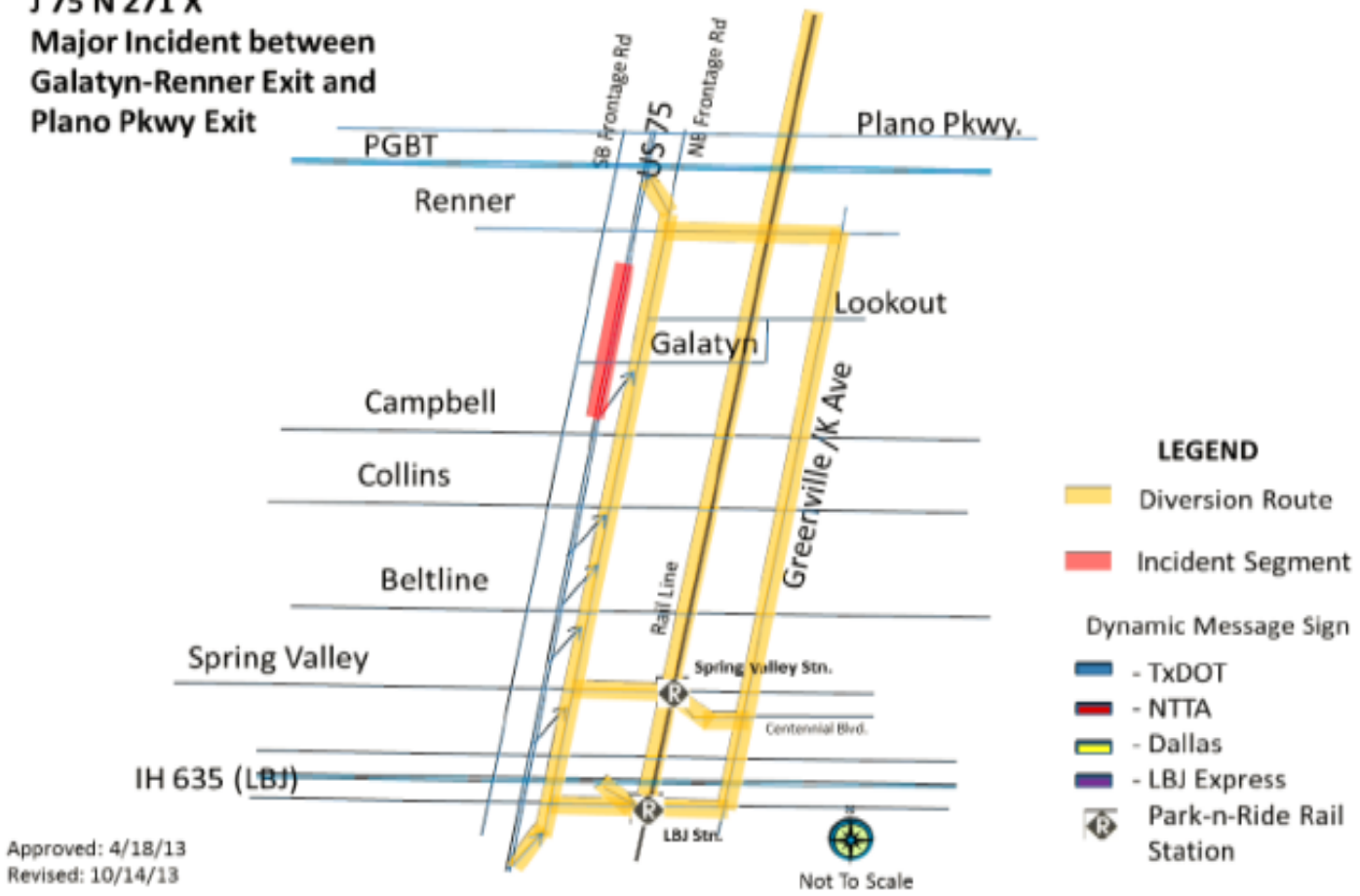
Enhanced decision making support for operating agencies

Achieves a 20:1 return ($278.8 million) on the project's cost over 10 years

Less pollution from idling vehicles in congested traffic

Response Plan: J75N271 X AM

J 75 N 271 X
Major Incident between Galatyn-Renner Exit and Plano Pkwy Exit



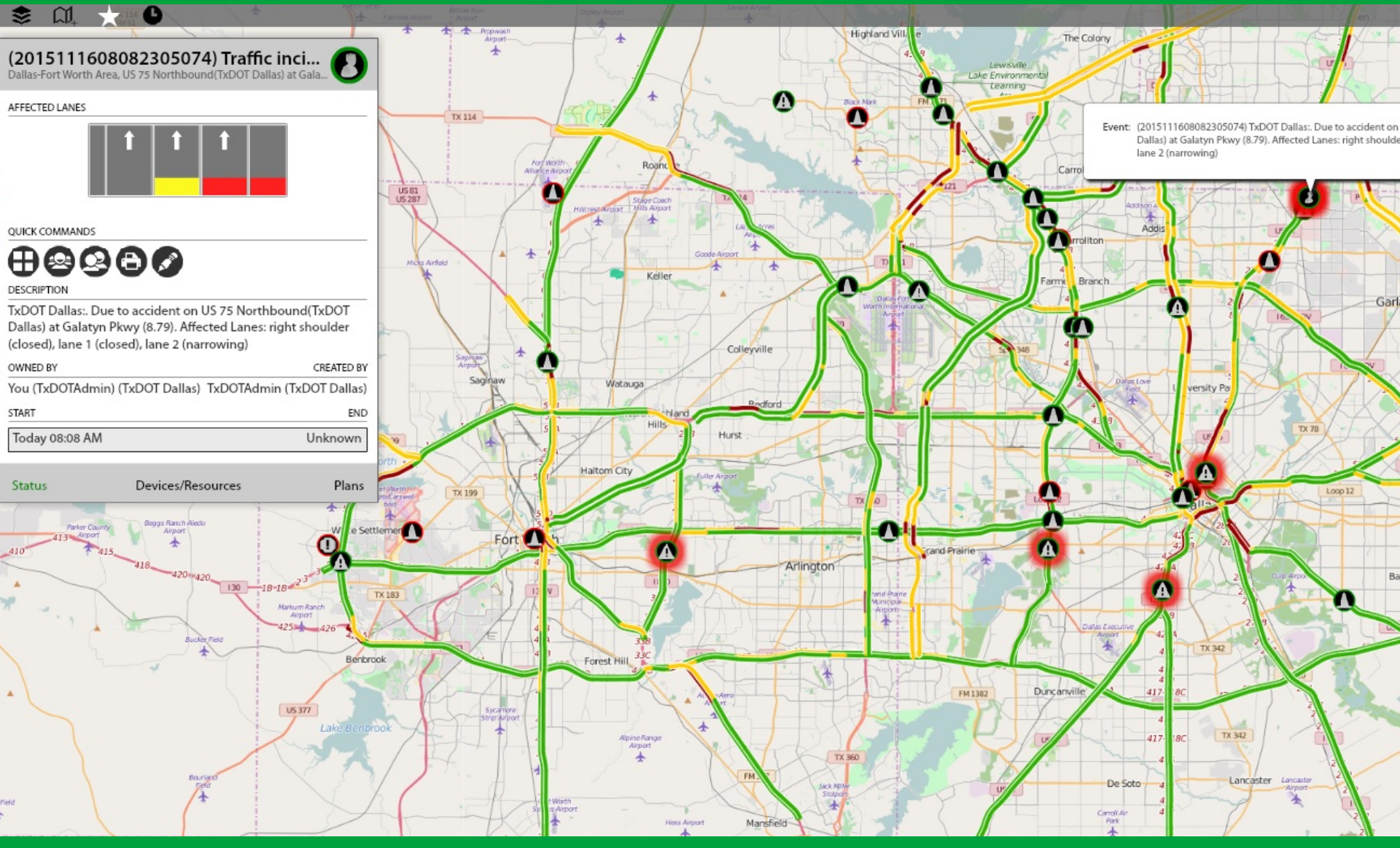
Approved: 4/18/13
Revised: 10/14/13

Involved Agencies

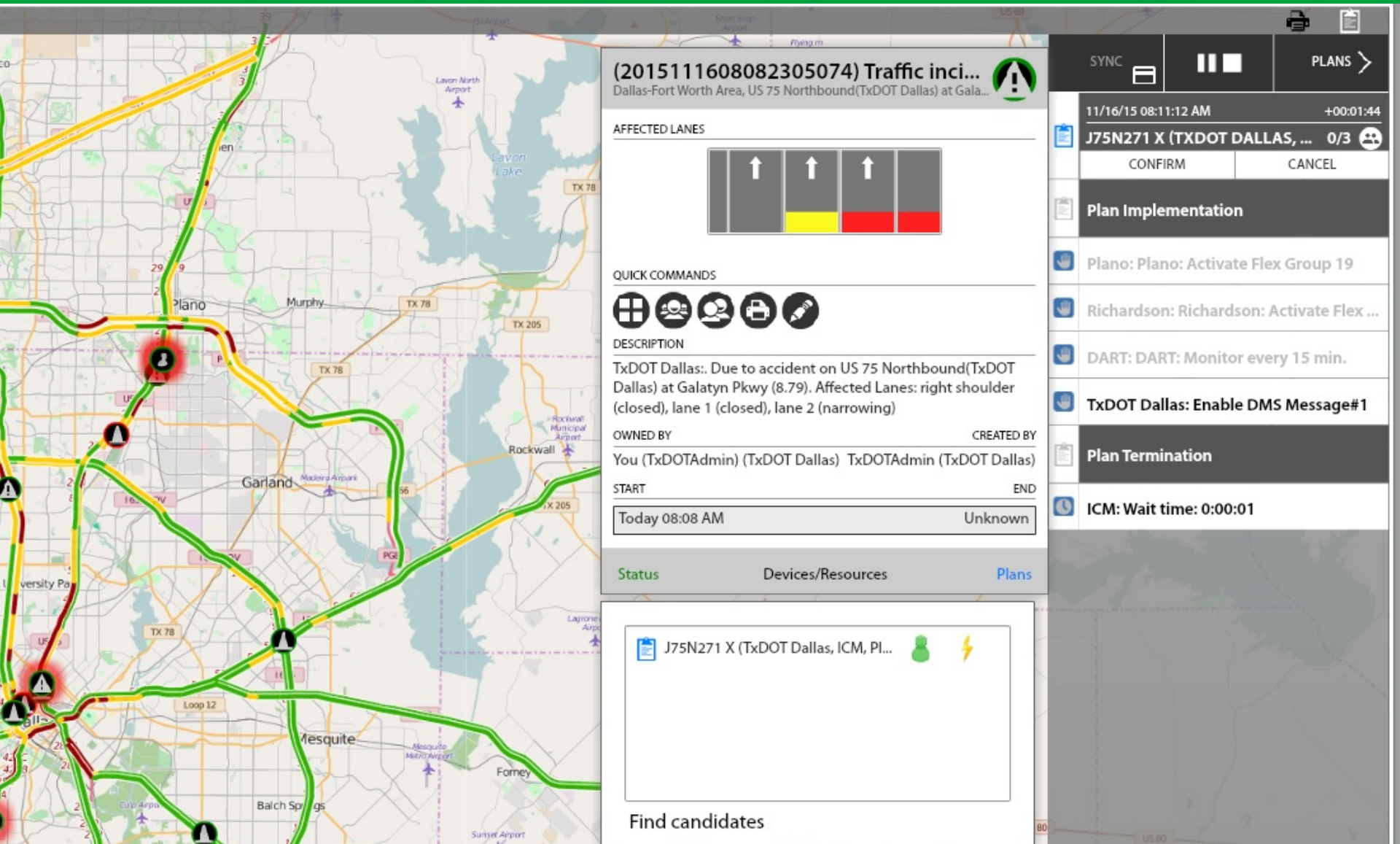
1. Richardson
2. Plano
3. DART

Confidential Proper

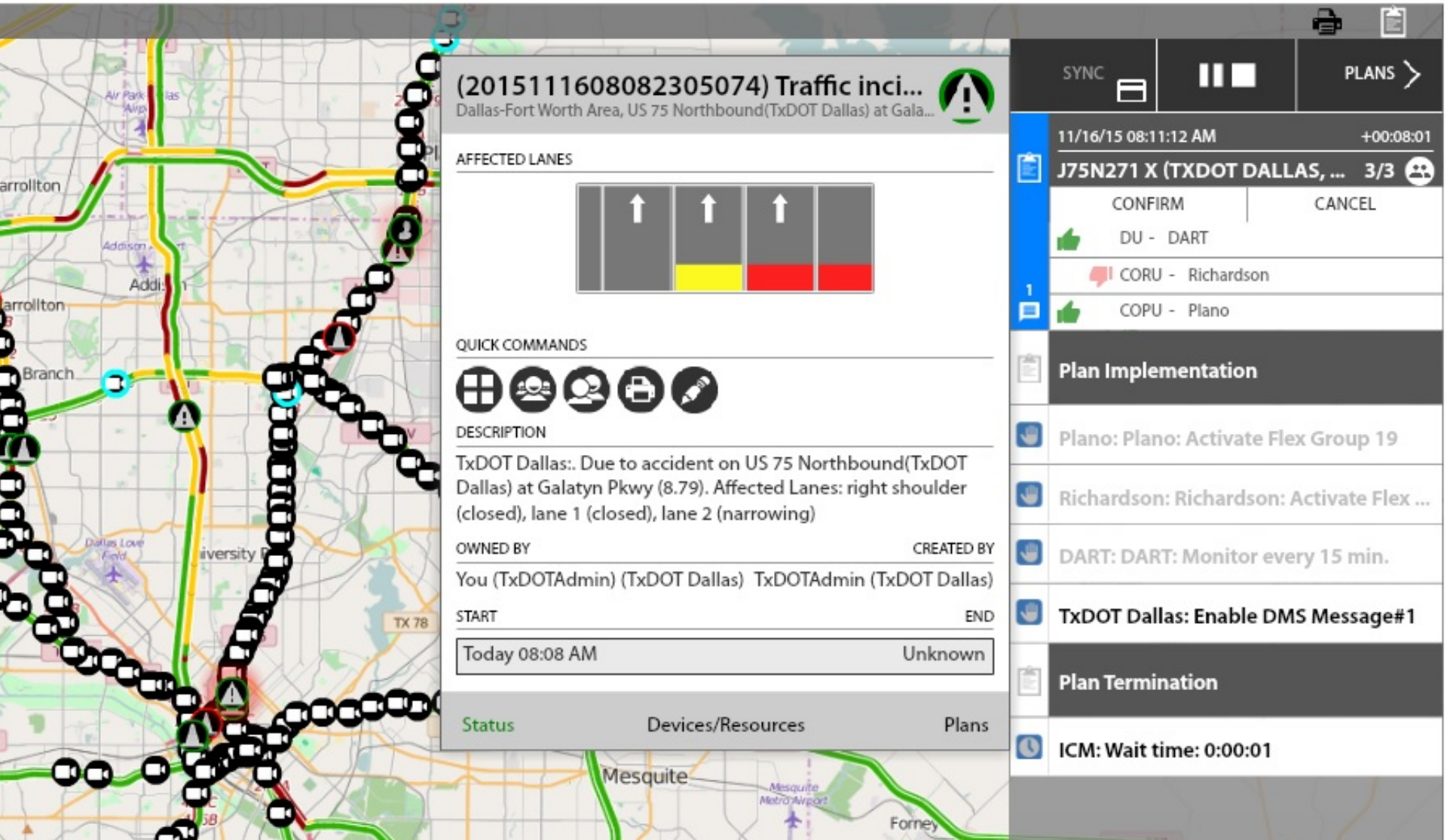
Incident Creation



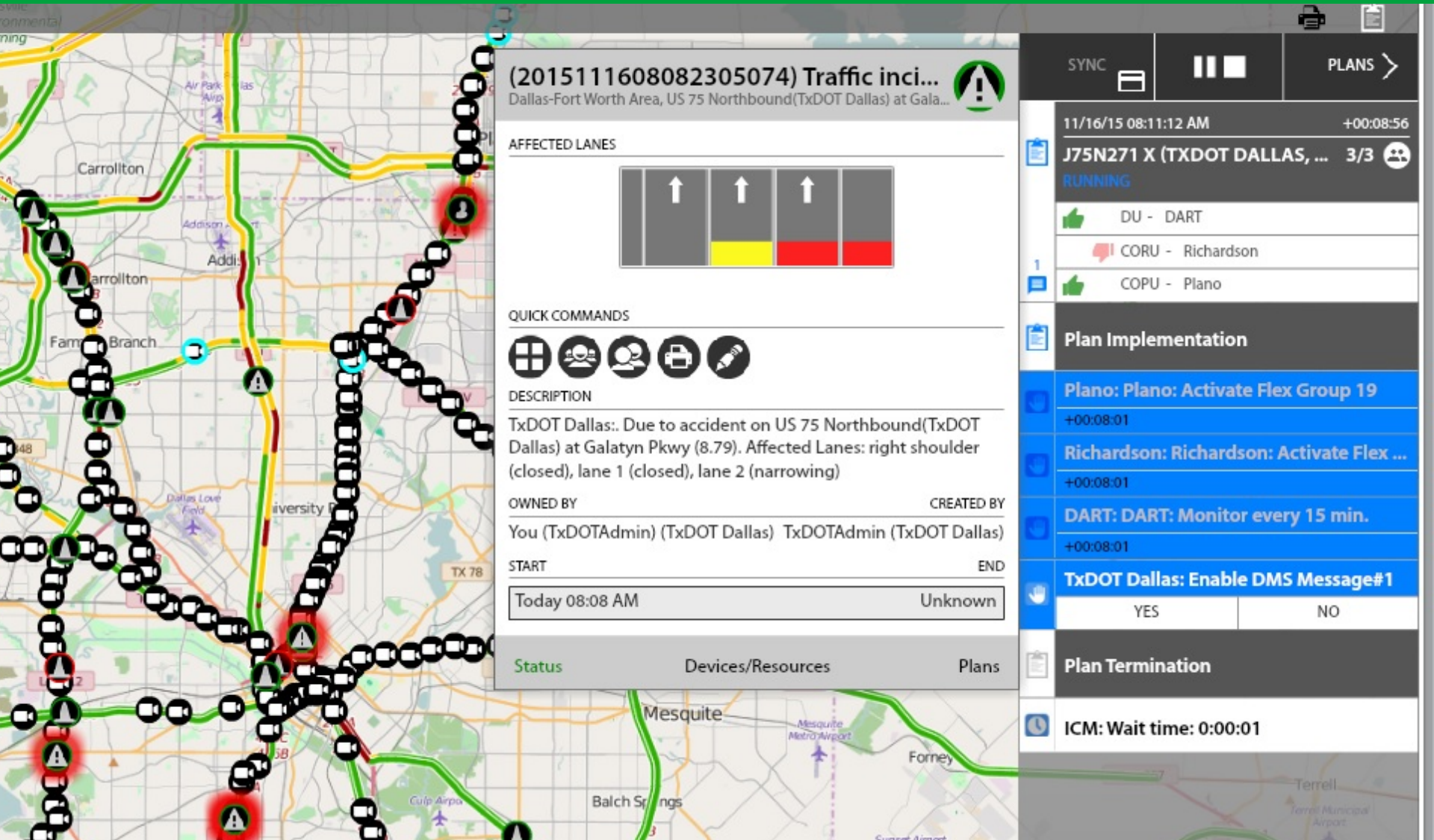
Recommended Plan



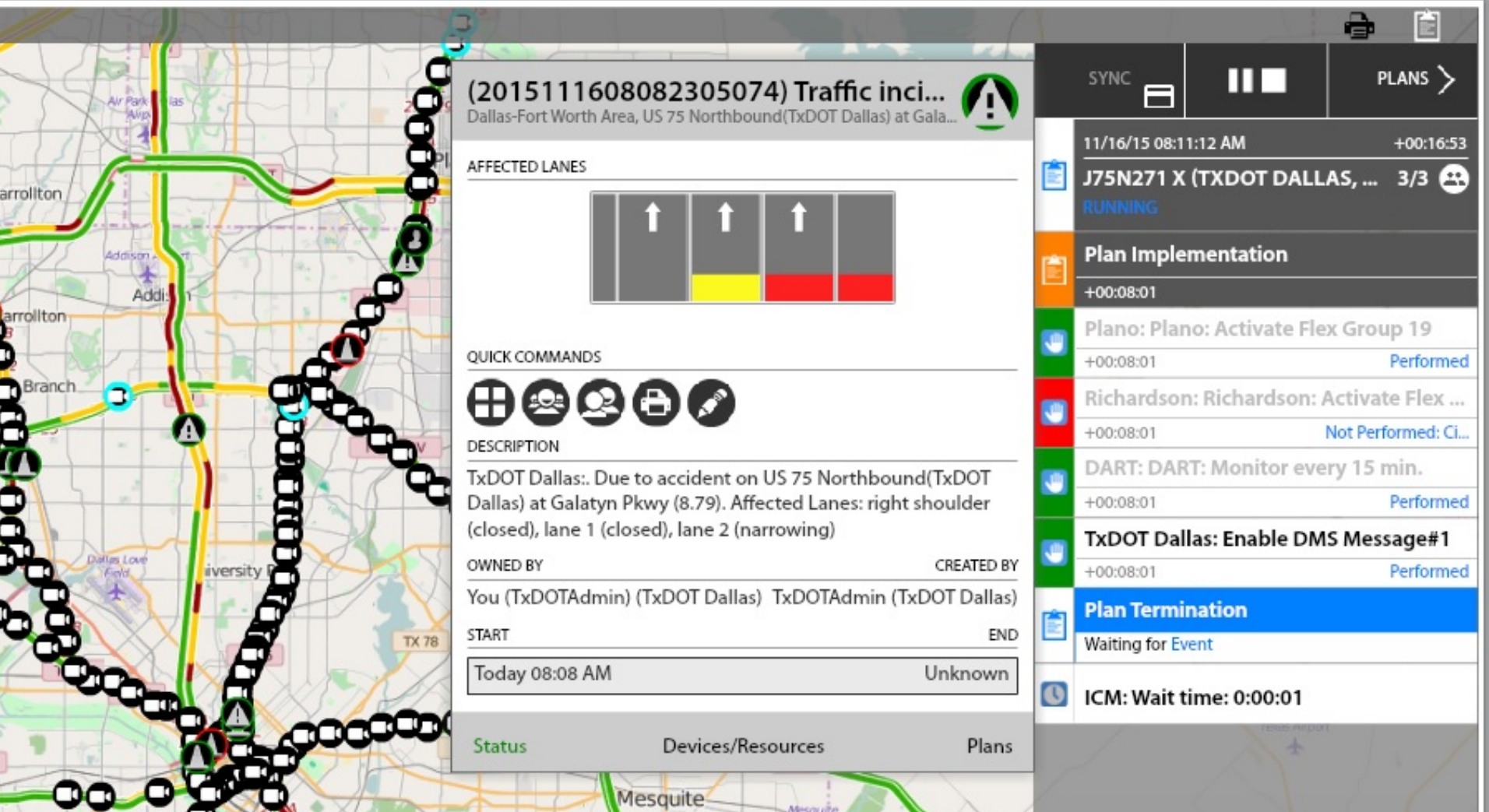
Agencies Readiness



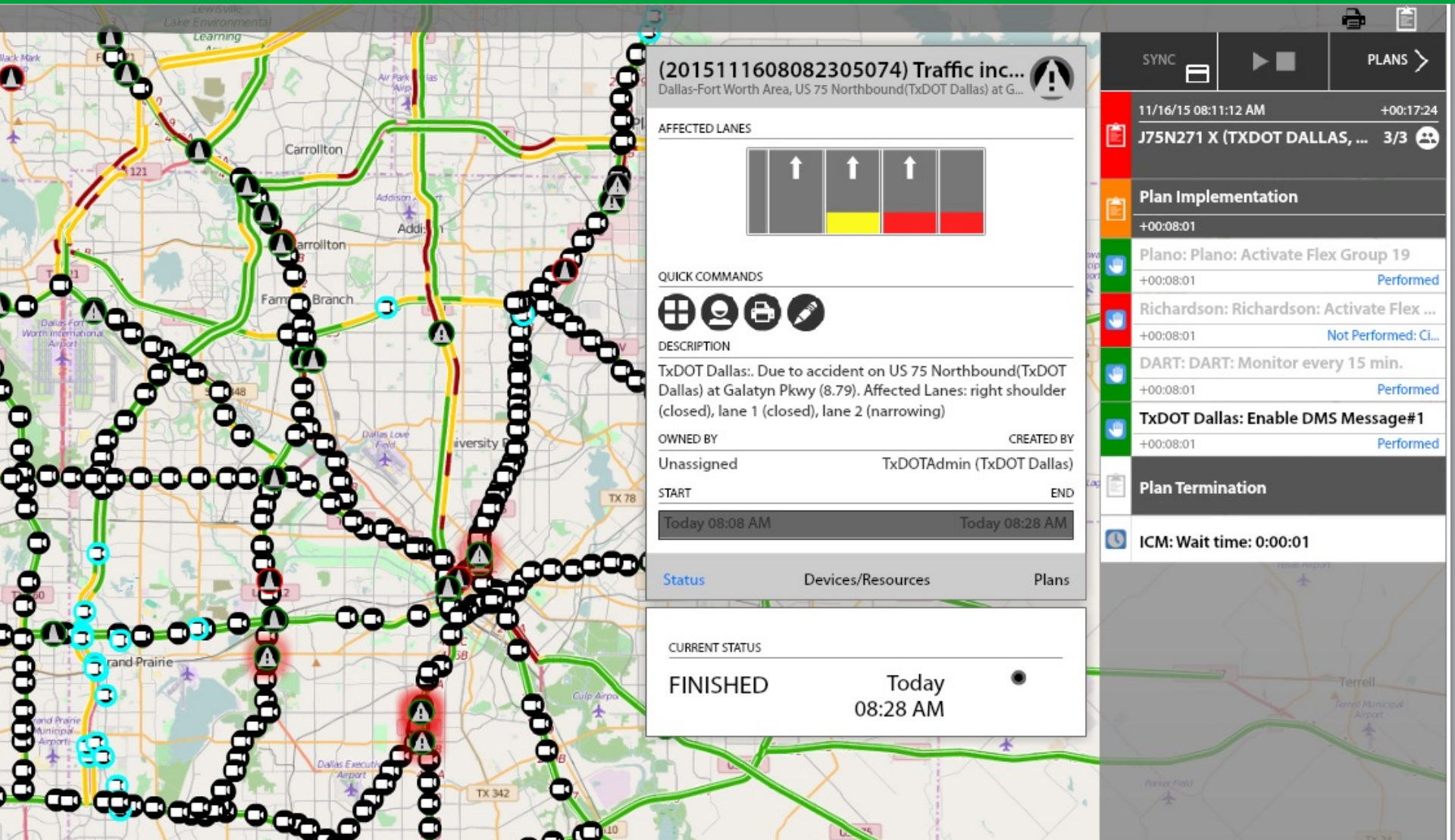
TxDOT Response



Response Plan in Motion



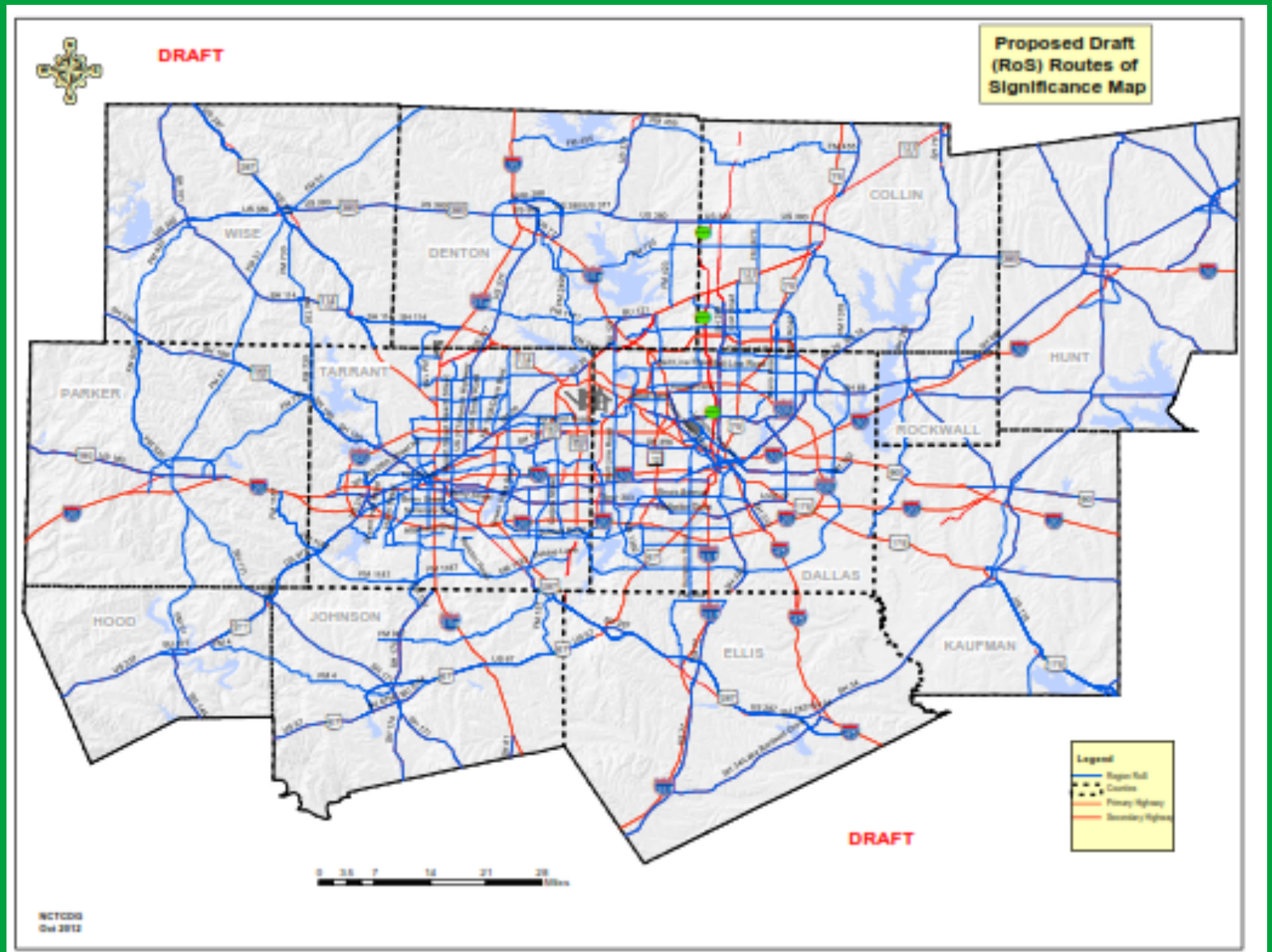
Incident Closed, Plan Terminated



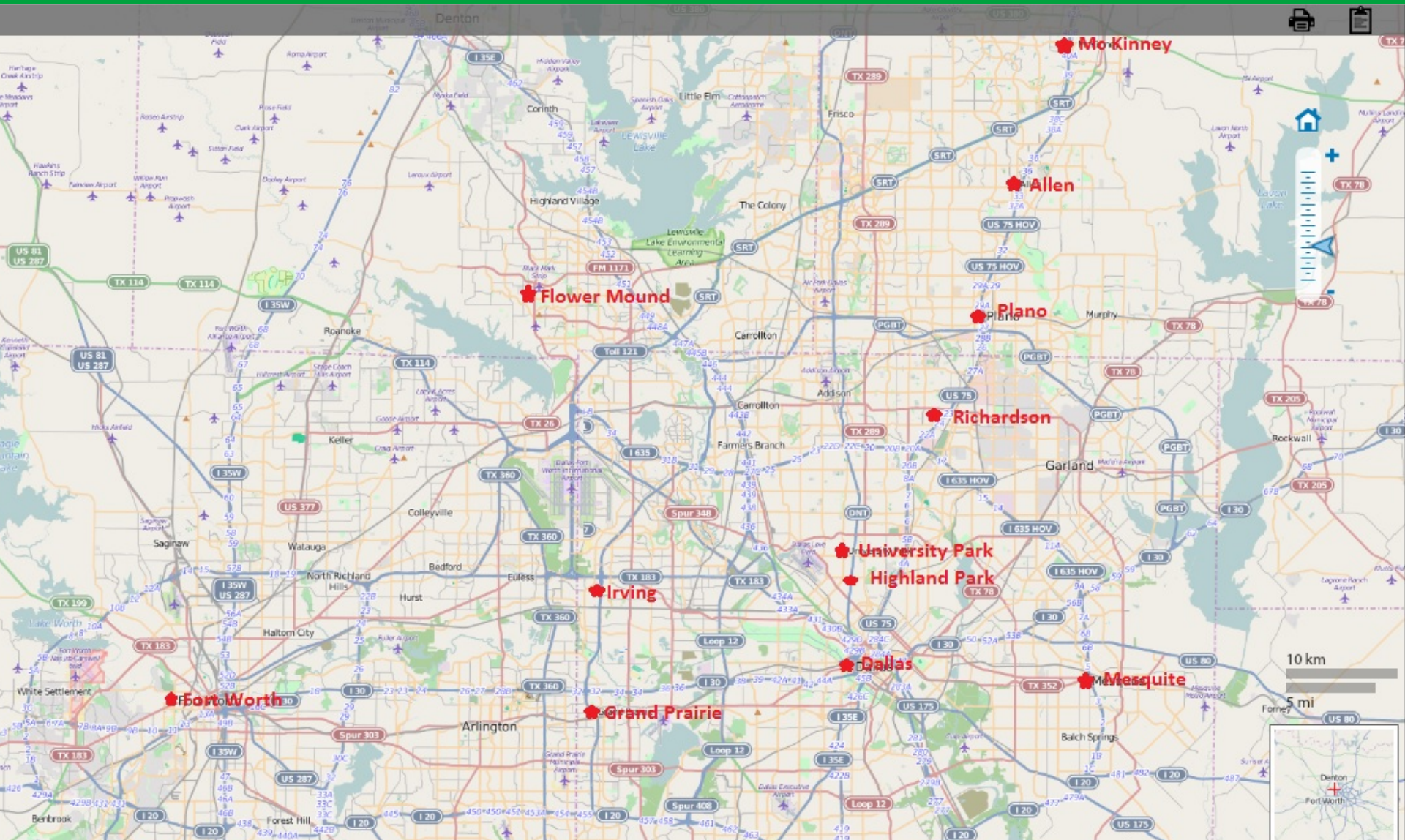
Operational Needs

- Regional Expansion
- Resources and Responsibilities Sharing
- Sharing of ICM Coordinator Responsibility
- Improved User Interface
- Map Centric
- Situation Awareness
- ATMS and DSS Automation
- Transit Applications
- Dynamic Performance Measures

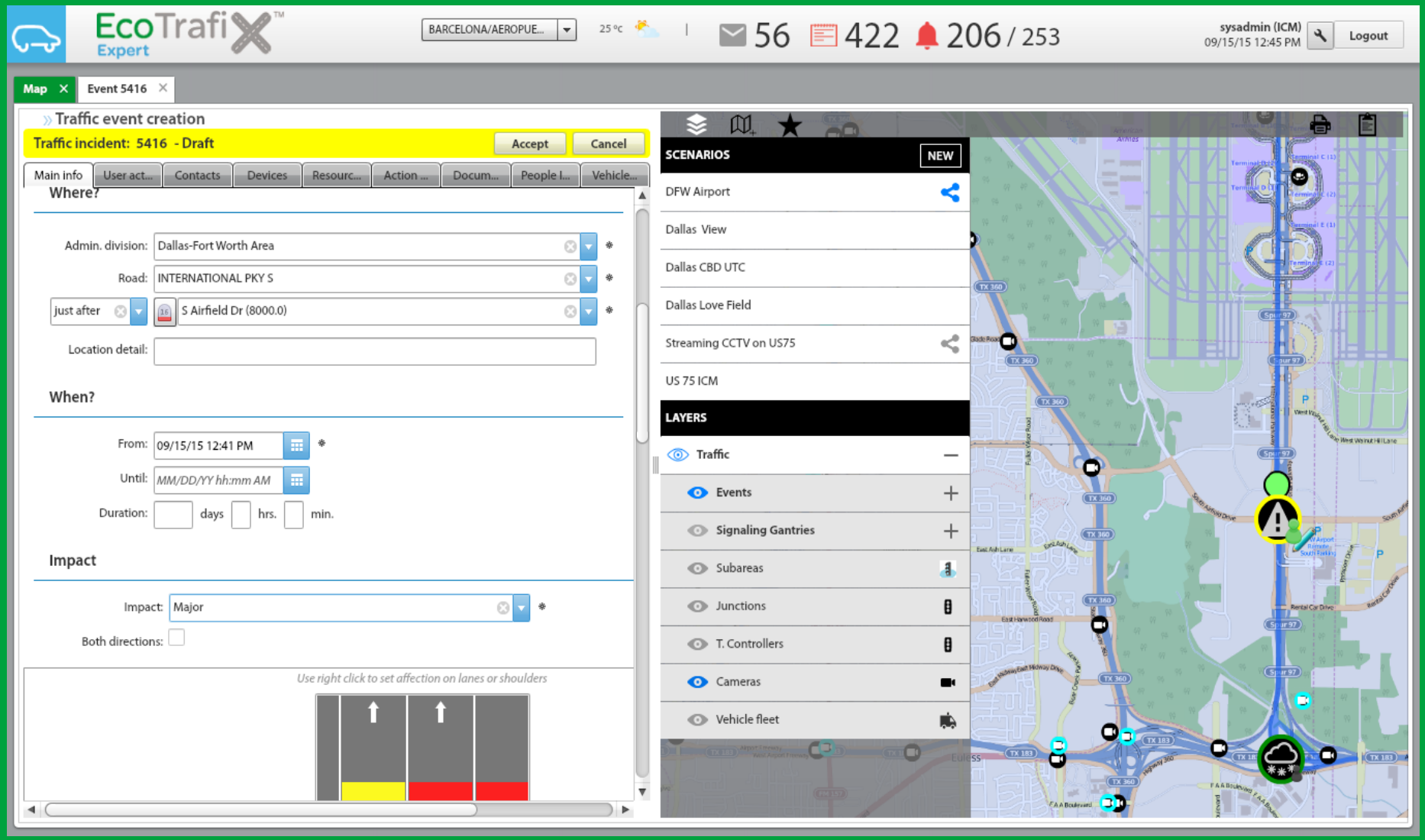
NCTCOG Coverage Area



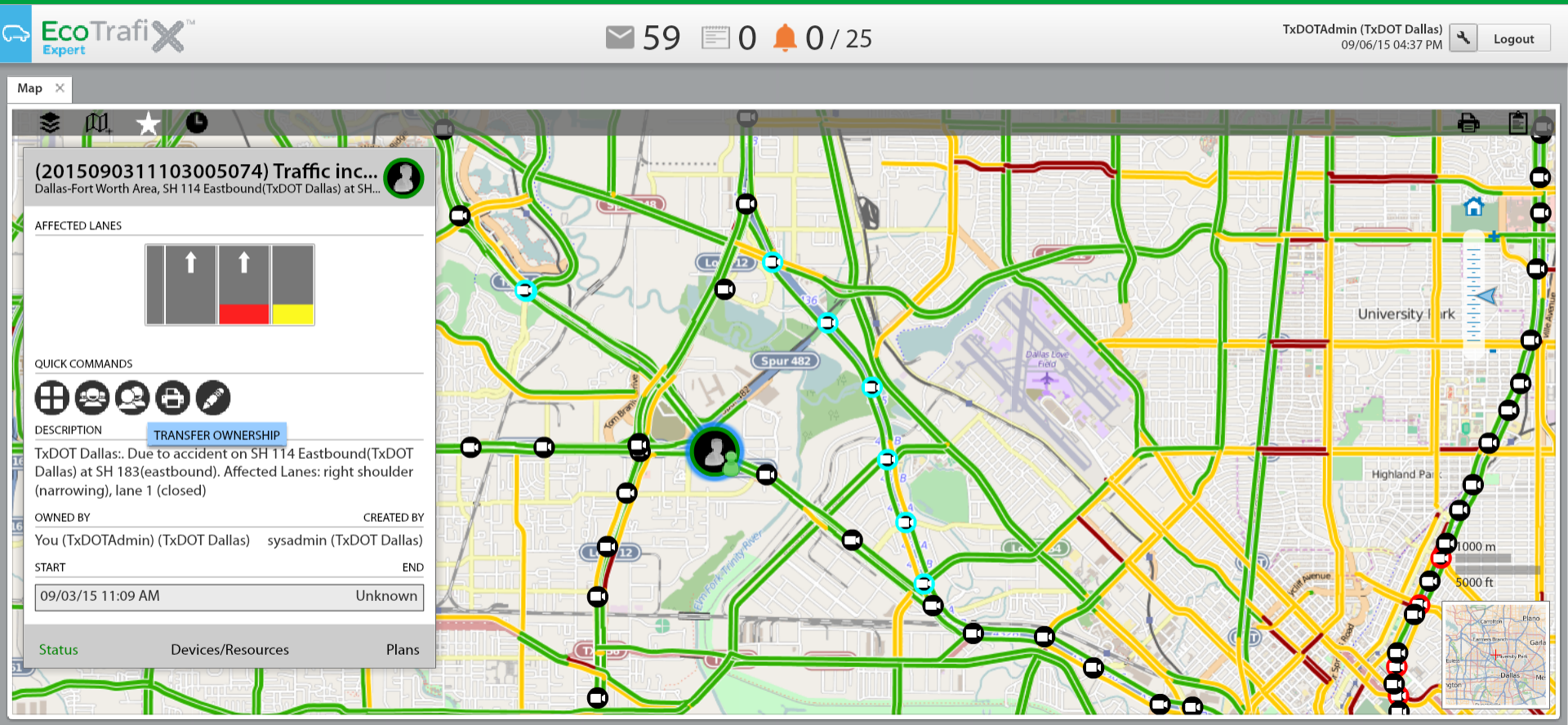
DFW Metroplex



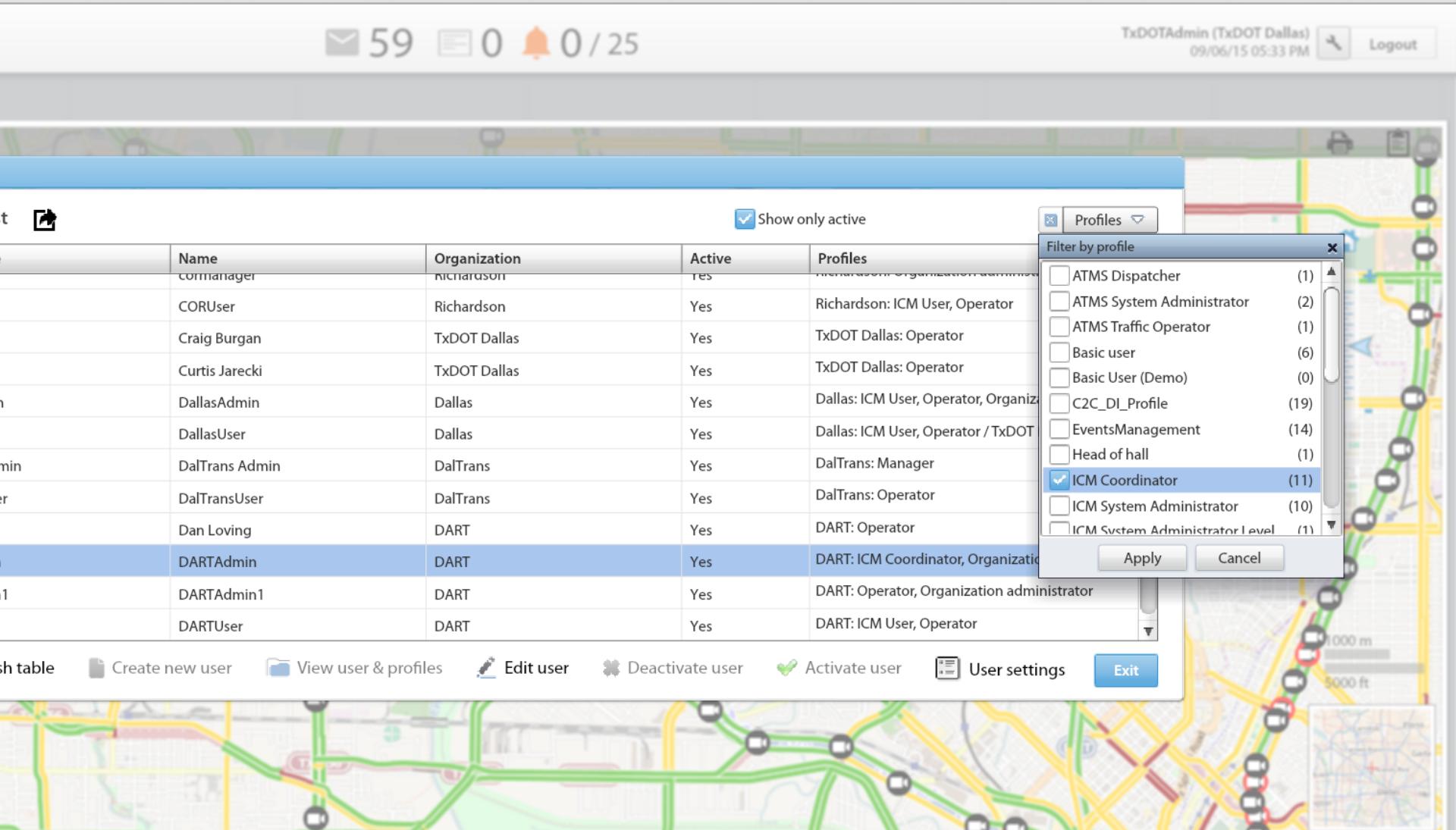
Improved Event Management



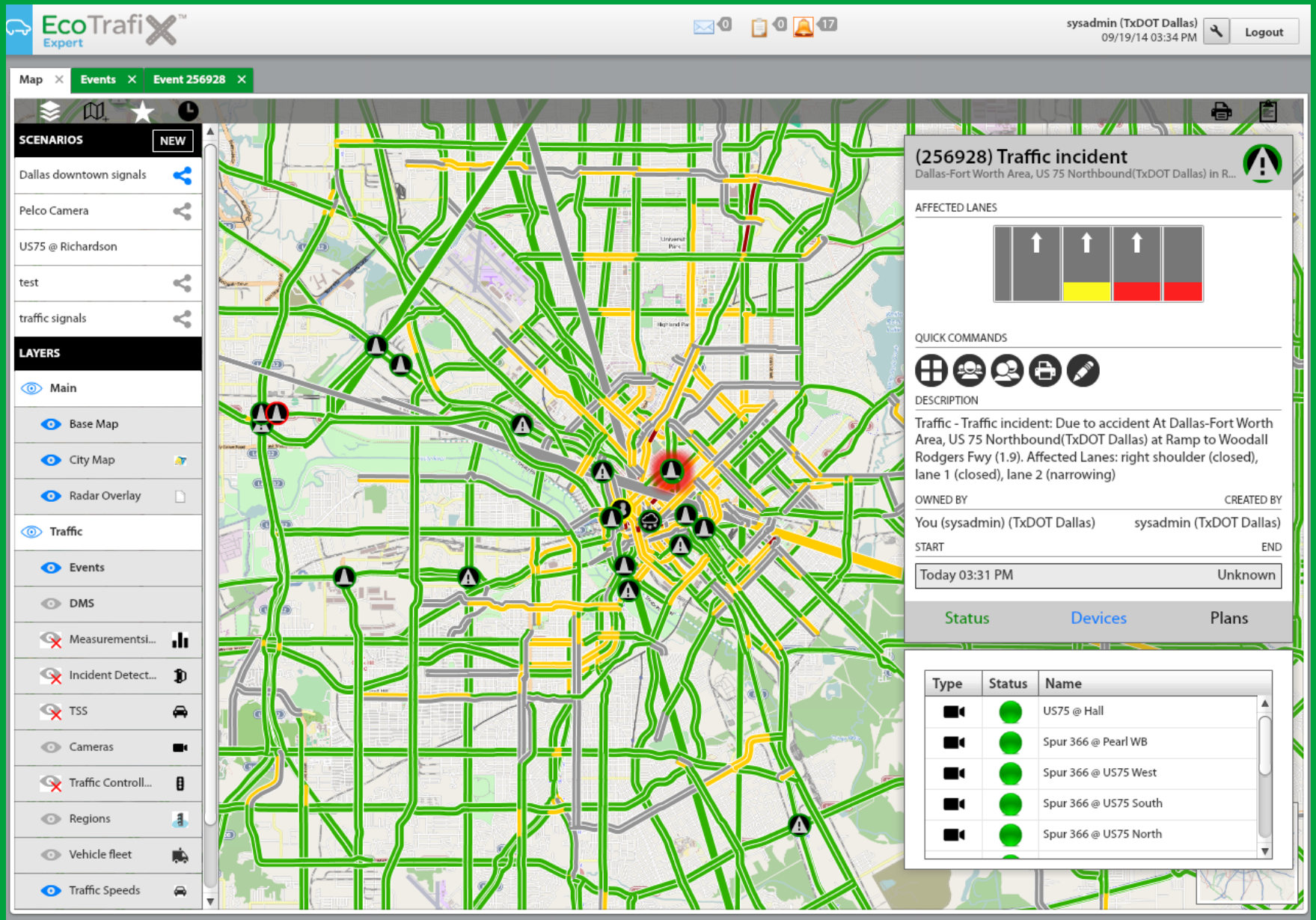
Event Ownership / Transfer



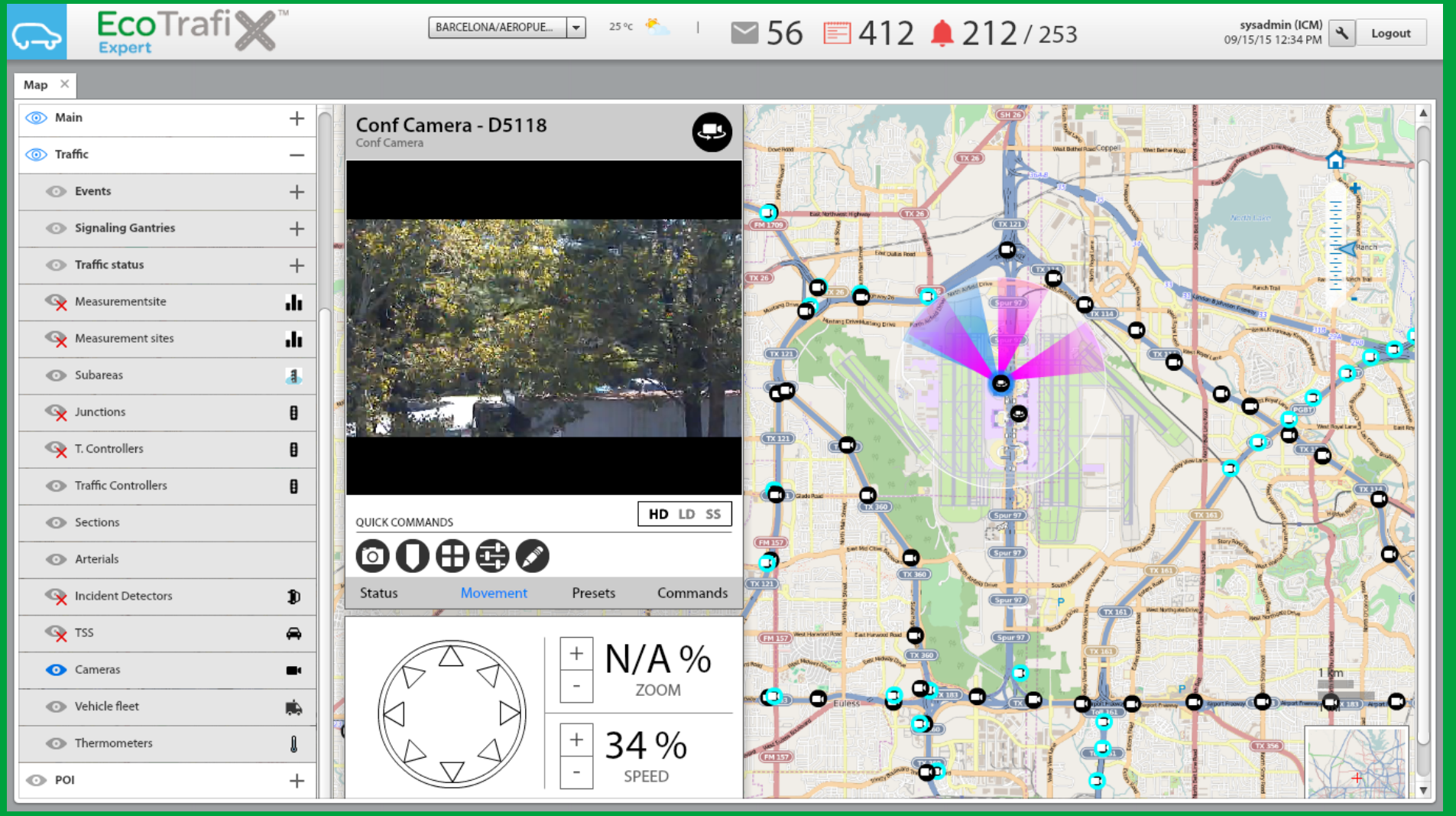
ICM Coordinator Flexibility



Situation Awareness



Device Control



DART INCIDENT MANAGEMENT SYSTEMS

INCIDENT LOGGED	OCC LOG	Incident is Logged in	1
RAIL MOVEMENT MONITORED	SCADA	Supervisory Control and Data Acquisition	2
	VBS	Vehicle Business Systems	3
STAFF/PUBLIC INFORMED	EVERBRIDGE	DART Staff informed regarding Incident	4
	PUBLISHER	Public informed via Facebook/Twitter/ DART.org, etc	5
	Platform PA System	Public Announcements on Platforms	6
	Platform PAVMB	Messages on Platform Visual Message Boards	7
	Rail PA System	Onboard announcement by Rail Operator	8
EVENT OBSERVATION	Platform CCTV	Activity on the Platforms	9
	Weather DTN	Monitoring Weather	10
RESPONSE	TRANSIT MASTER	Monitor Bus Location & Request for Bus Bridge	11
	TRAPEZE	Establish Bus Bridge by Station Office	12
COORDINATION	?????	?????	

OTHER TECHNOLOGY	TVMs	INFOTAINMENT	HEAD SIGNS
	WHERE IS MY BUS?	APCs	FAREBOXES
	WHERE IS MY TRAIN?	SMART DRIVE	TRANSIT CAMERAS

DART Supervisory System

External Sources

- **Transit Master**
  Bus/Rail - AVL/CAD
- **Vehicle Load**
  APC Data Feed
- **Weather**
  Data Feed
- **Surveillance Cameras**
  DART (Police, Safety, Rail Platform, Transit Centers, Operations / Maintenance Facilities, Revenue, etc)
  NTTA, TXDOT
- **GIS Data Layers**

MAP CENTRIC 1

- Where is my Bus?
- Where is my Train?
- What is the load on the train?
- How is the weather? Past 30 mins, Projected 30 mins
- What is going on the platform?
- Are there any stranded passengers?
- How heavy is the traffic?
- How heavy is the snow falling?
- Are the streets clear?
- Has the accident been cleared?

Input Form(s): 2

- Incidents Details
- Alerts
- Public Input
- Employee Input

Report Generator: 3

- Post Incident Summaries
- Incident Queries by Date / Incident Type/Class, etc.
- Automated Periodic reports
- (OCC Logs/Business)

Public Facing

- Everbridge
- Publisher
- DARTNet
- PAVMBs

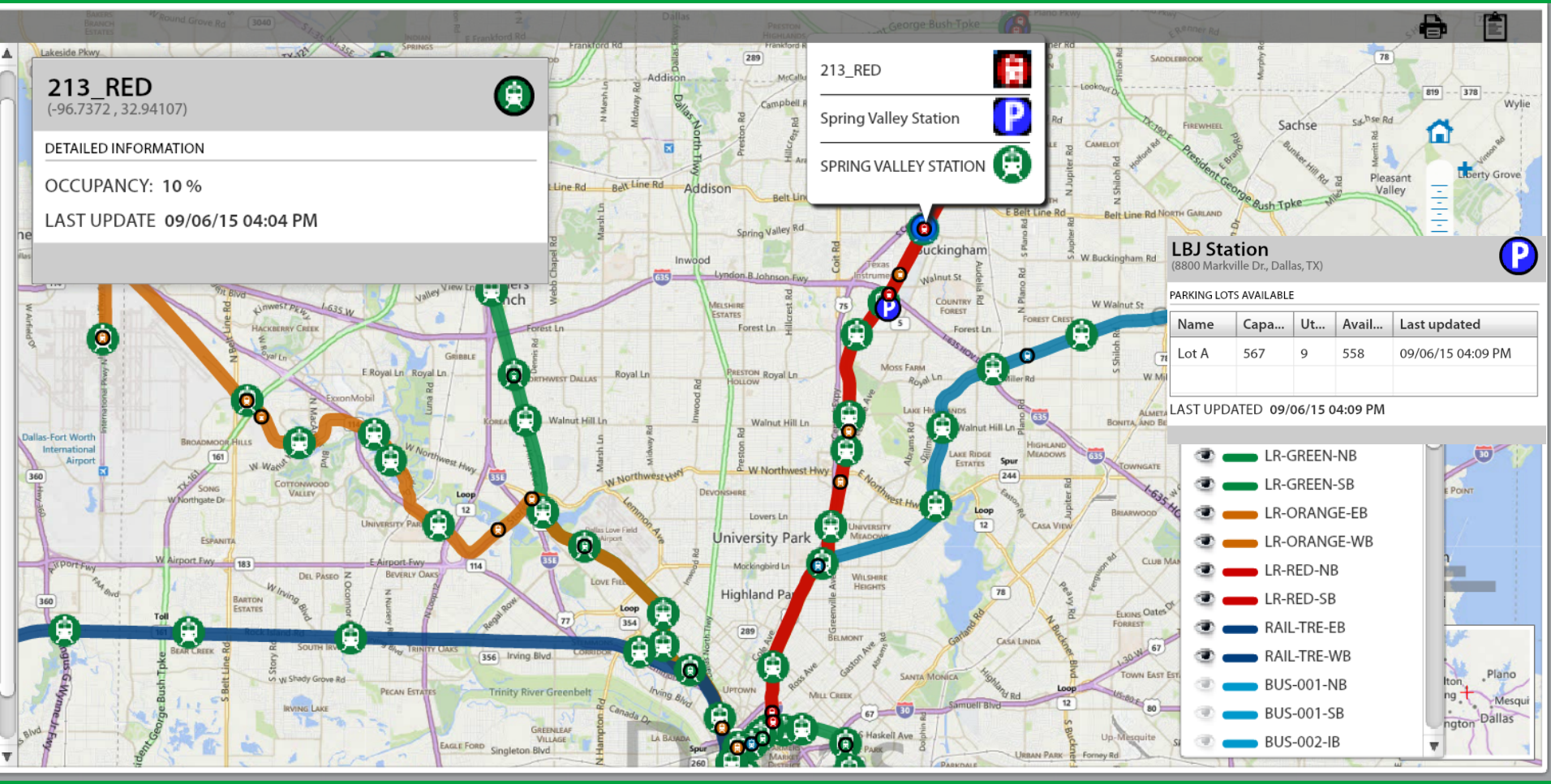
Controlled Views/Access

- Public
- DART User
- Power Viewer
- Administrator

Core Intelligence: TTA optimized modeling engine against Data Repository (Historical, Real-Time, Projected

Web Enabled App: Platforms/OS: Laptop – Tablet – Smartphone

Real Time Transit Information



Incident Response Plan #1:
LRT RAIL DISRUPTION SHUTTLE
LOVERS LANE STATION & MOCKINGBIRD STATION

Instruction: Initiate Bus Bridge to transport passengers between Lover's Lane Station and Mockingbird Station.

ROUTING TO MOCKINGBIRD STATION (Use Destination Code 04) **FROM *LOVERS LANE STATION***

L. MILTON TO EXIT LOVERS LANE STATION
R. GREENVILLE
R. YALE
L. WORCOLA
R. INTO MOCKINGBIRD STATION

ROUTING TO LOVERS LANE STATION (Use Destination Code 06) ***FROM MOCKINGBIRD STATION***

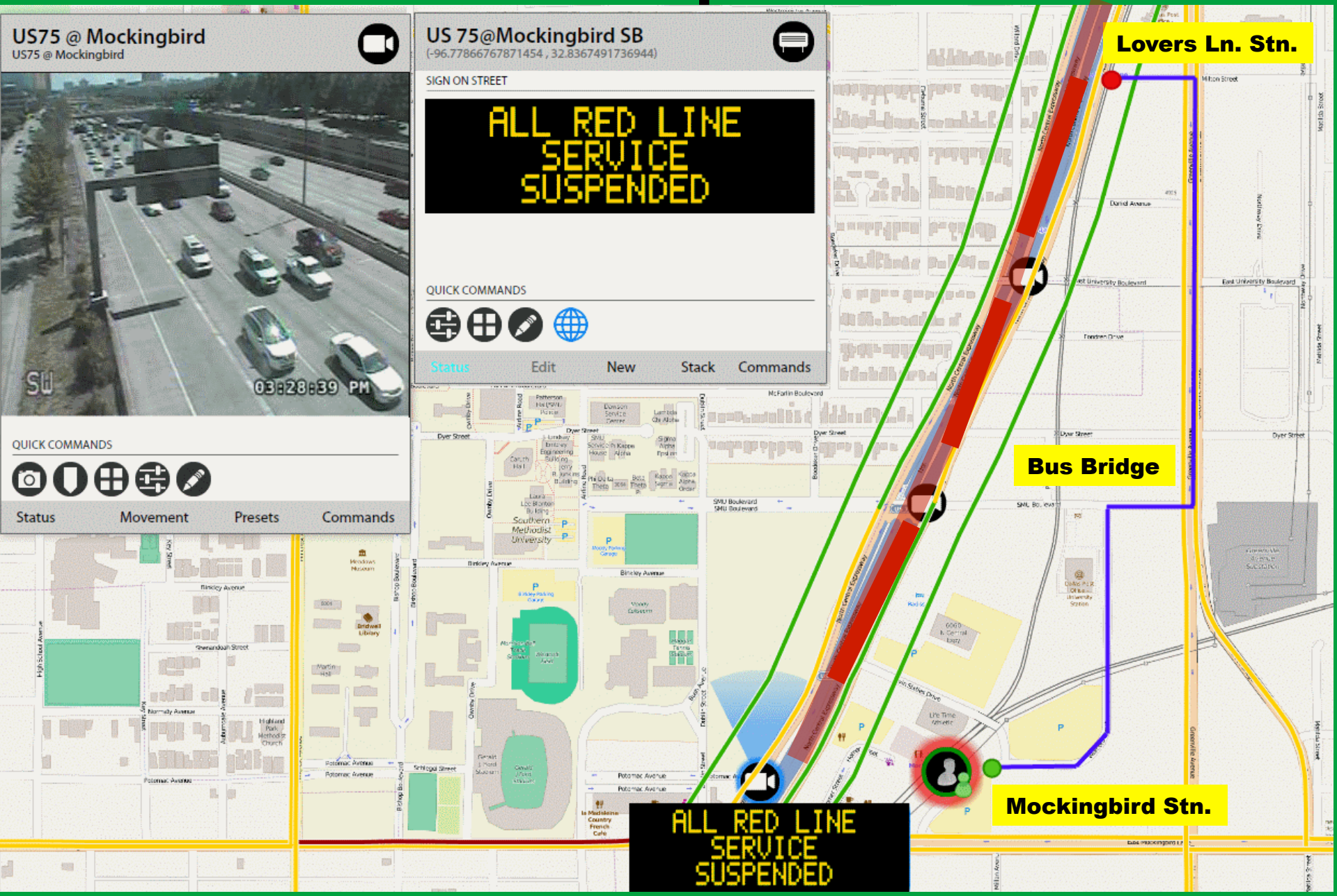
L. OUTER ROAD TO EXIT MOCKINGBIRD STATION
L. TWIN SIXTIES
R. US 75 FRONTAGE ROAD
R. LOVERS LANE
R. GREENVILLE
R. INTO LOVERS LANE STATION

Use bus requirements and supervisory staff for Bus Bridge

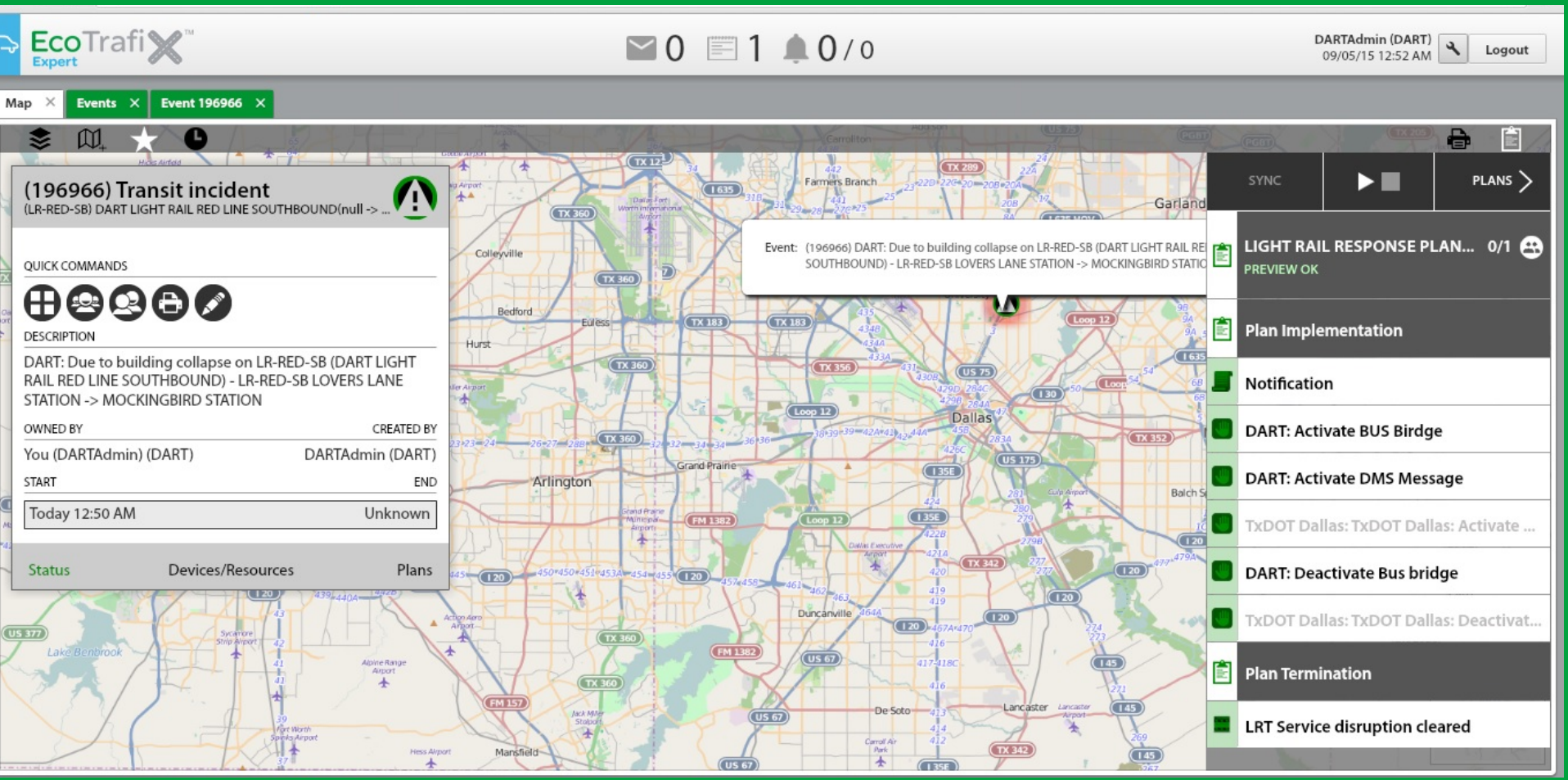
Step #1: Announce Change in Operation to Train operators and trains supervisors.
Step #2: Notify Bus Control to Set up Bus Bridge #1 between Lovers Lane Station and Mockingbird at 9:00 am.
Step #3: Order 10 buses including 5 at Mockingbird and 5 at Lovers
Step 4: Request DART Police, F
Step 5: Notify DART PIO to

Time Period	Pass/Hr	Bus Require.	Supervisors Required at each sation.	Police or fare enforcement
Before 6:00 am	600/hr	8 buses	2	2
6:00 am to 9:00 am	1600/hr	20 buses	2	2
9:00 am until 3:00 pm	600	10 buses	2	2
3:00 pm until 7:00 pm	1600	20 buses	2	2
After 7:00 pm	600	8 buses	2	2

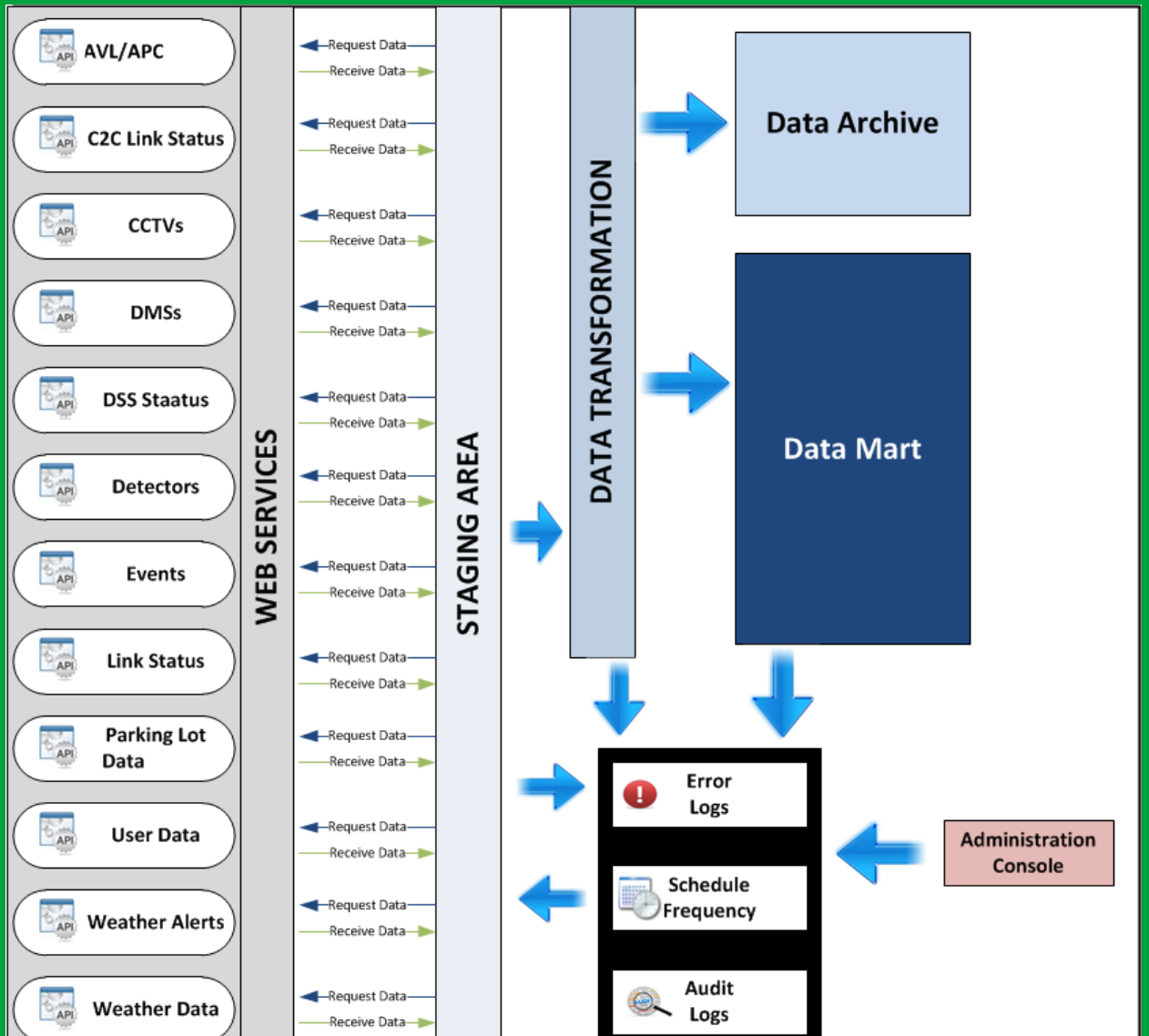
LRT Rail Distruption Shuttle



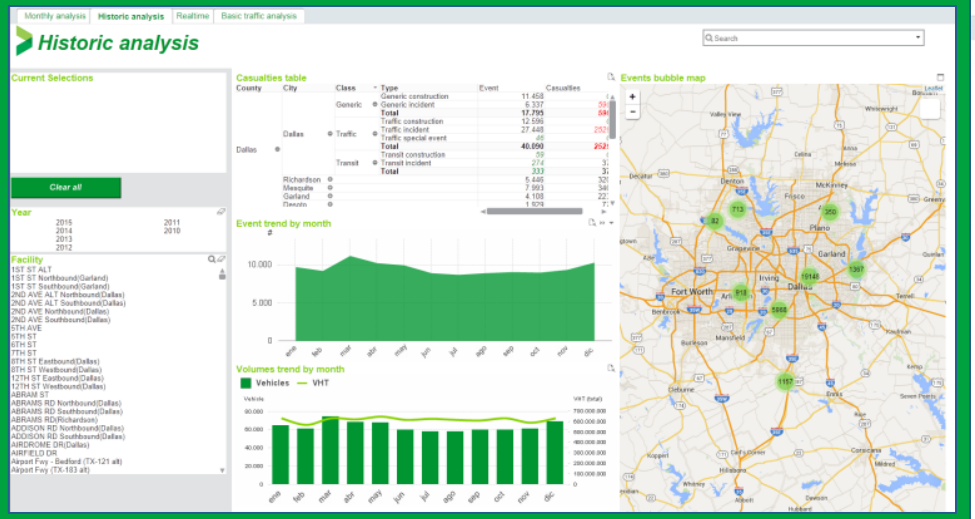
Bus Bridge Response Plan

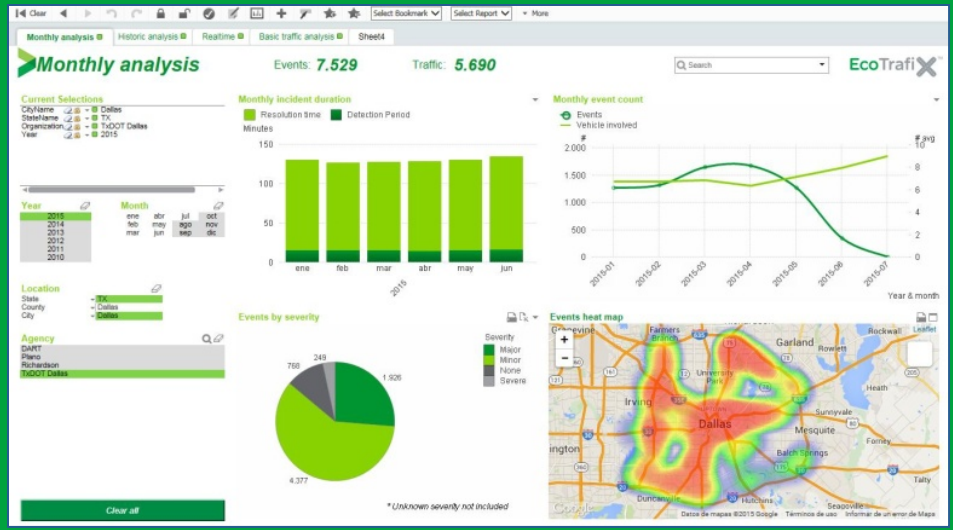


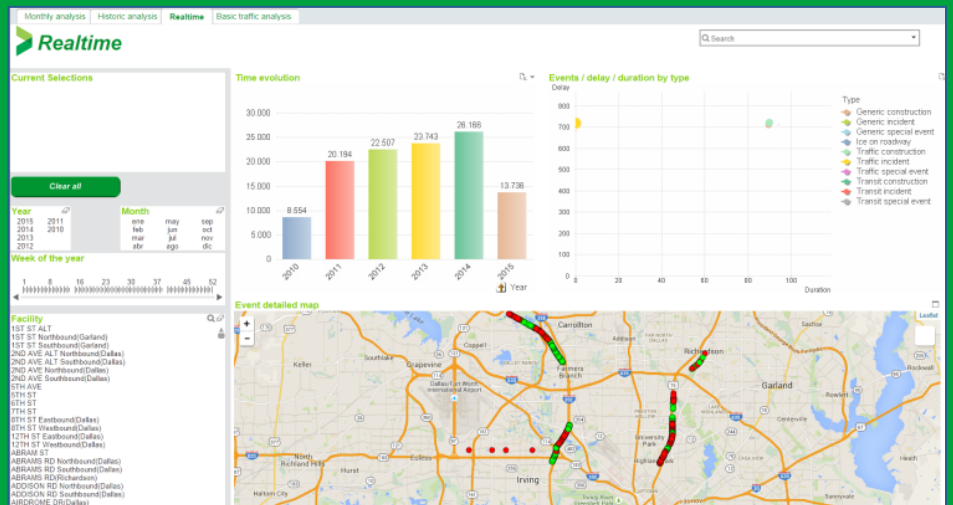
Data Archival

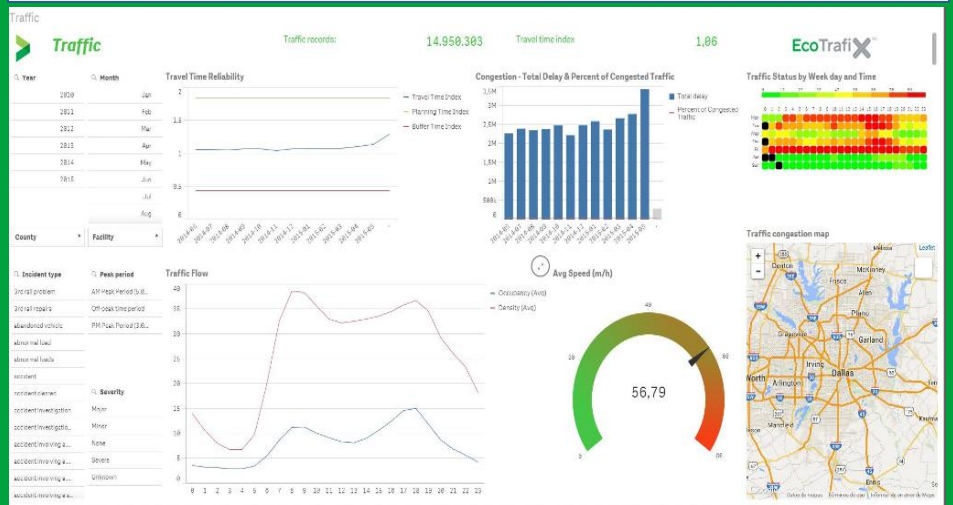


Performance Measures









Thanks