

Arterial Street Operation in the Dallas US 75 ICM Demonstration

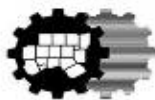
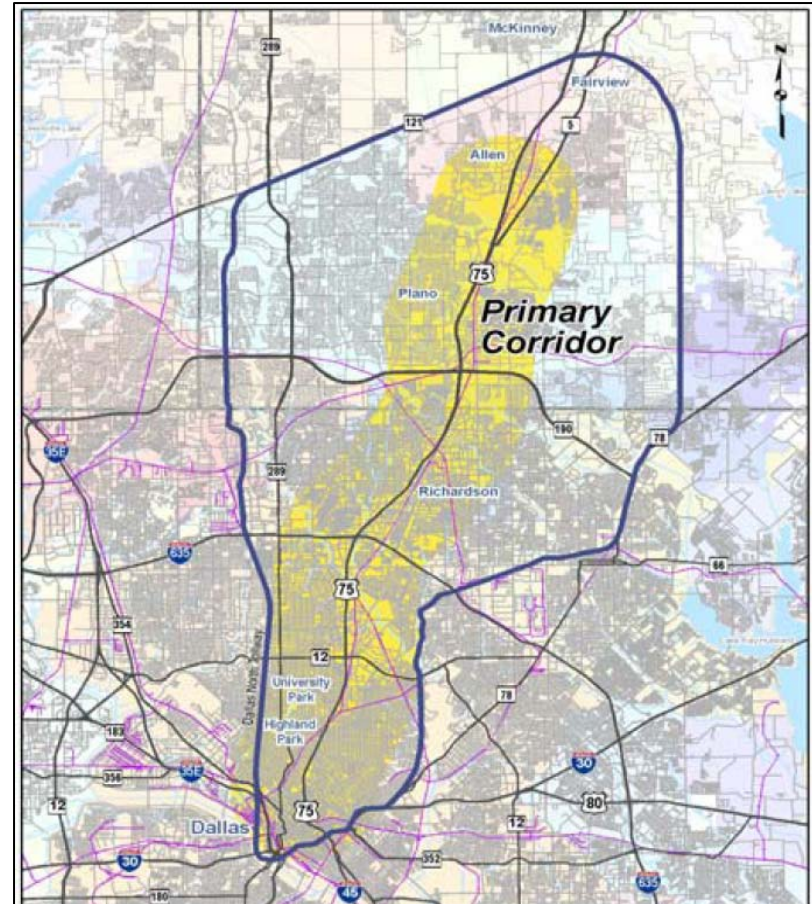


Christopher Poe, Ph.D., P.E.
Assistant Agency Director
Texas Transportation Institute

ITS Texas Annual Meeting – San Marcos, Texas
November 11, 2011

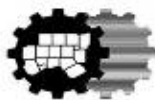
US 75 Corridor Networks

- US 75 Freeway with Continuous Frontage Roads
- HOV lanes on US 75 & I-635
- Dallas North Tollway
- 167 Miles of Arterials
- DART Bus Network
- DART Light Rail
- 900 Signals
- Multiple TMCs
- Regional ATIS



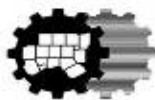
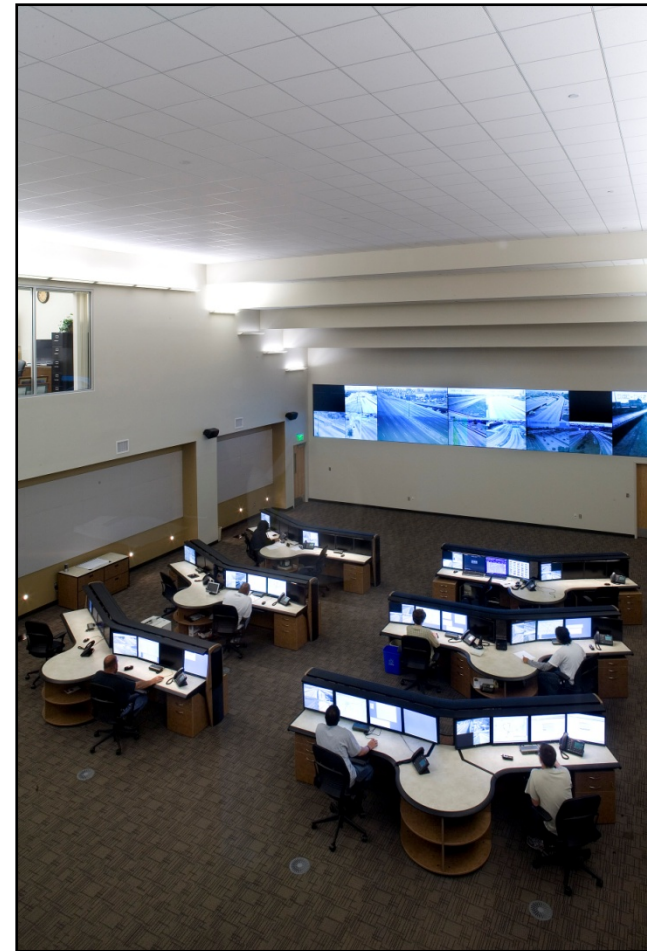
US 75 ICM Vision

Operate the US 75 Corridor in a true multimodal, integrated, efficient, and safe fashion where the focus is on the transportation customer

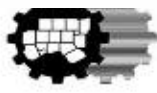
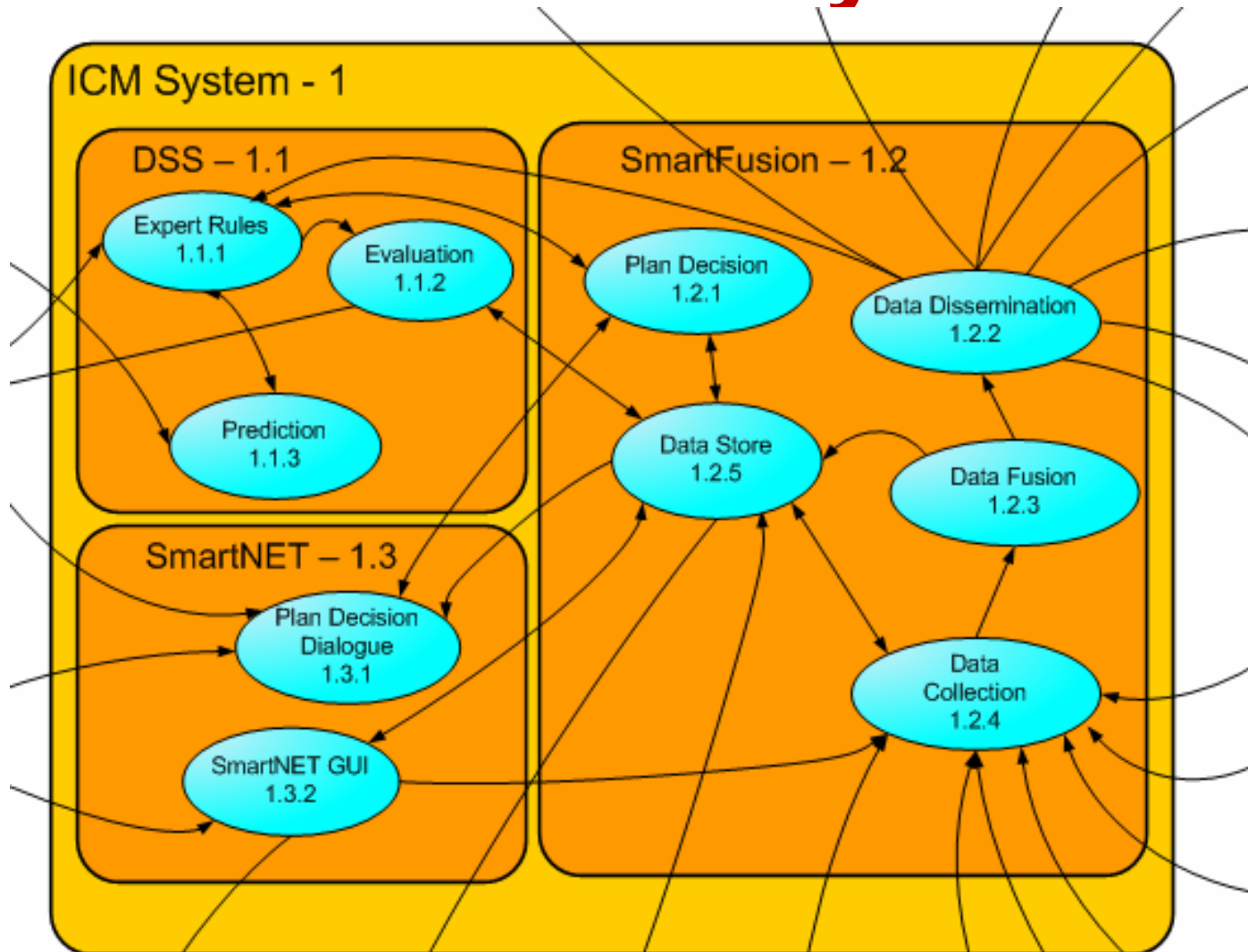


ICM System (ICMS)

- Centered at DalTrans
 - TxDOT
 - DART
- ICM Coordinator
- Integrated with TMCs at Dallas, Richardson, and Plano
 - Use Agency staff
 - Agency keeps control

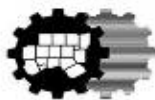
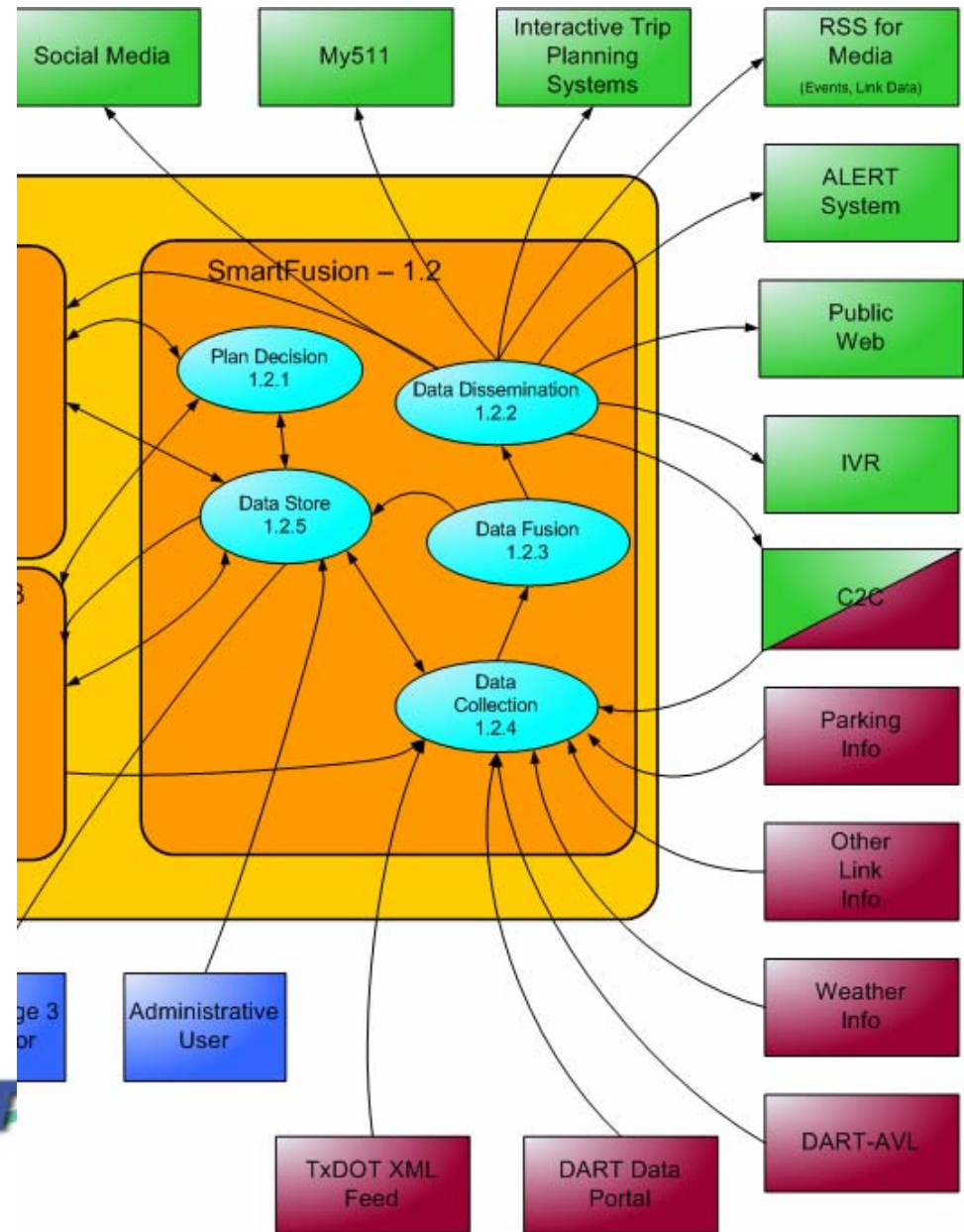


ICMS and Subsystems



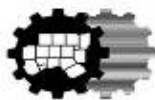
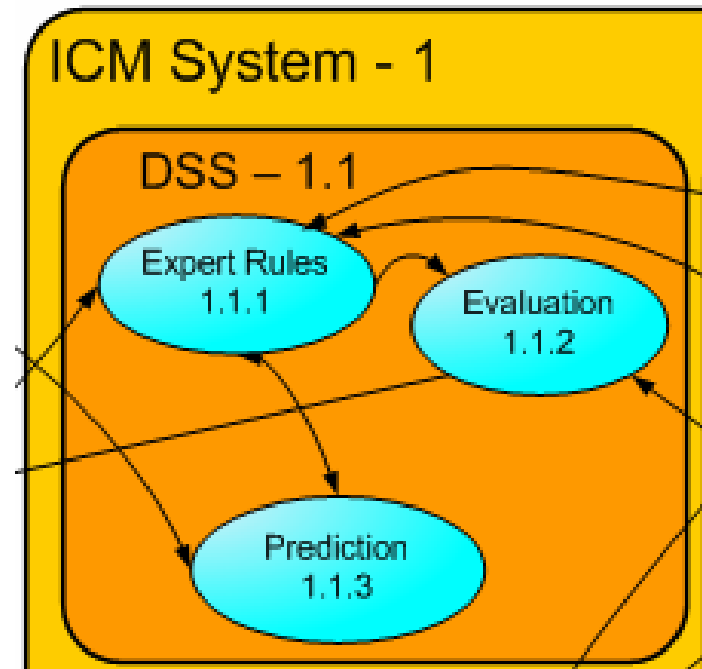
ICMS - SmartFusion

- Information Exchange Network
 - Data Fusion Engine
 - Receives and publishes data to the Regional C2C System & Other External Systems
 - Feeds data to the 511 Systems and Decision Support System



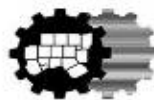
Decision Support System

- Expert Rules
 - Rules based system
 - Capture agency knowledge
- Prediction
 - Estimate real-time
 - Estimate 30 minutes ahead
- Evaluation
 - How did the corridor perform?



Traffic Control

- Passive
 - DMS (Freeway, Toll Road, Arterial Streets)
- Positive
 - Traffic Signal Timing
 - HOV Lane



Traveler Information

- Deploying Texas' first 511 System including:
 - Interactive Voice Response System
 - 511 Public Web
 - ALERT System
 - Data Portal to Public
 - Mobile Application
 - Social Networking



RSS for Media
(Events, Link Data)

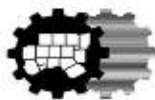
ALERT System

Public Web

IVR

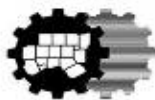
My511

Social Media



Arterial Street Operation

- Cities Have Optimized Their Networks
- East-West Signal Progression Important
- Data Gap for Real-time Arterial Conditions
- Data Needs from Cities:
 - Signal outages
 - Arterial street incidents, construction, special events

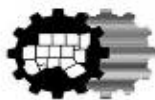


ICM Arterial Street Monitoring

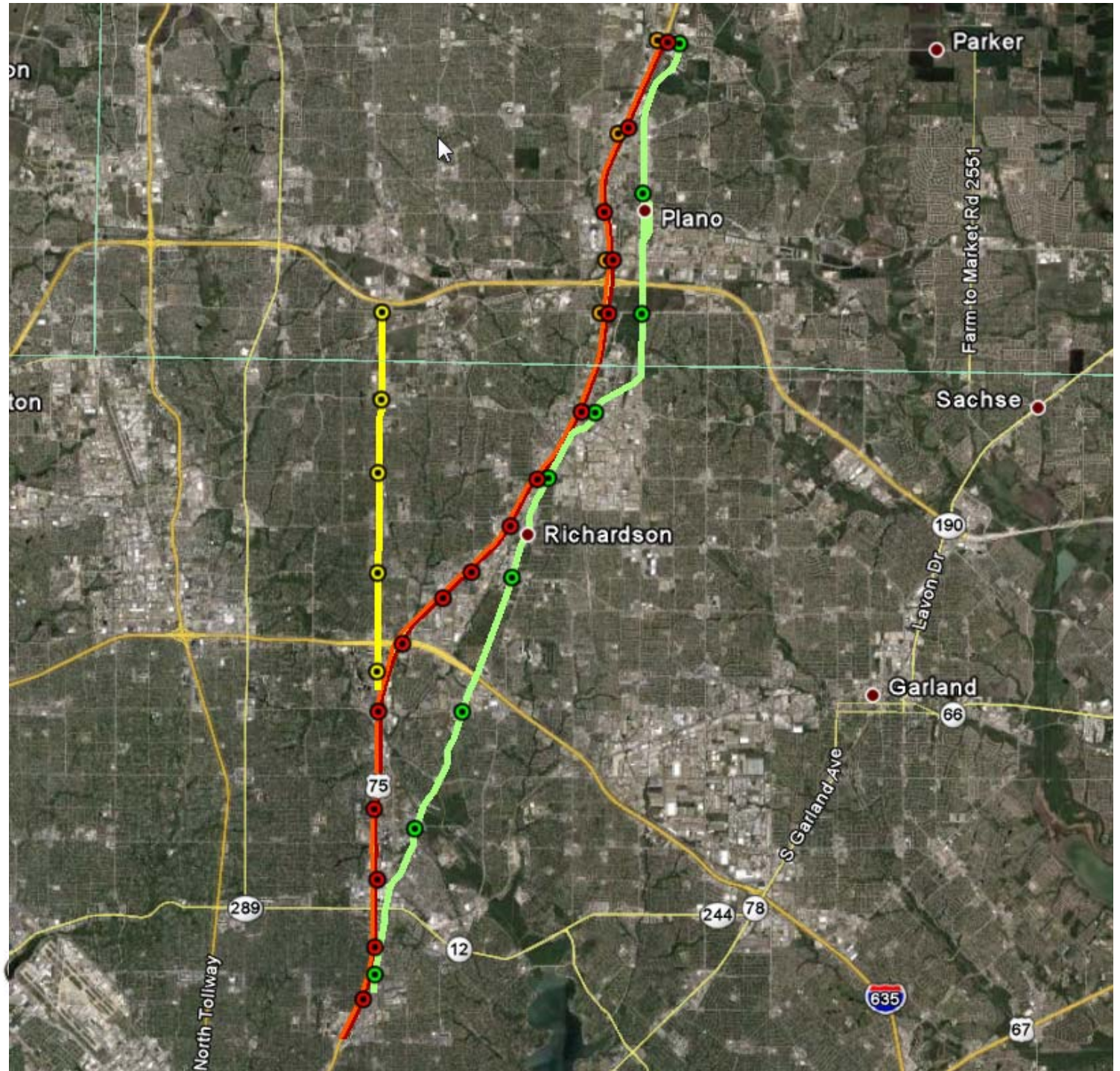


ICM Arterial Street Monitoring

- Proven Technology
- ICM will deploy approximately 40 locations along four diversion routes:
 - US 75 frontage roads (NB and SB)
 - Greenville Av.
 - Coit Rd.
- DSS will use travel time and speeds on diversion routes to select a recommended plan
- Ideal separation: 1 to 2 miles
- Schedule: 60% complete



Location of Field Devices

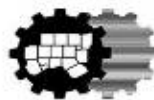
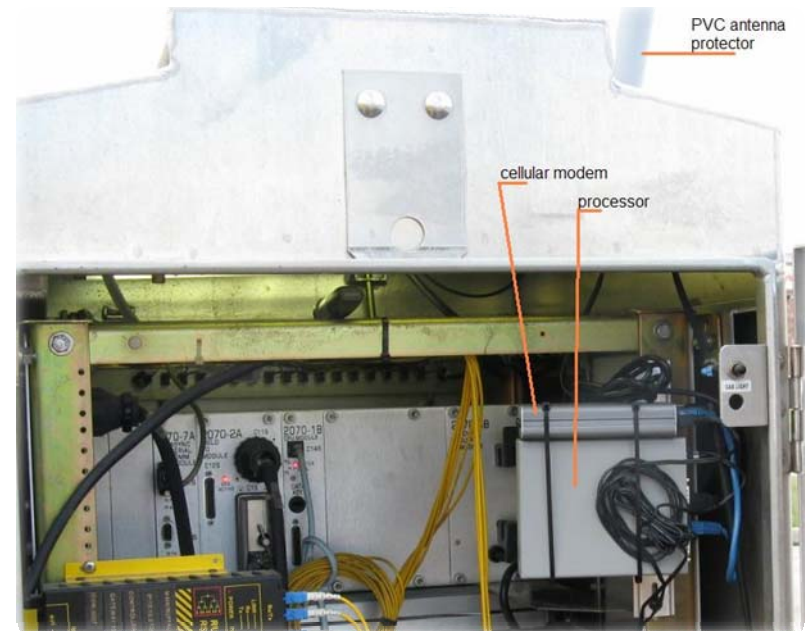


ICM Arterial Street Monitoring

Ped Head Type

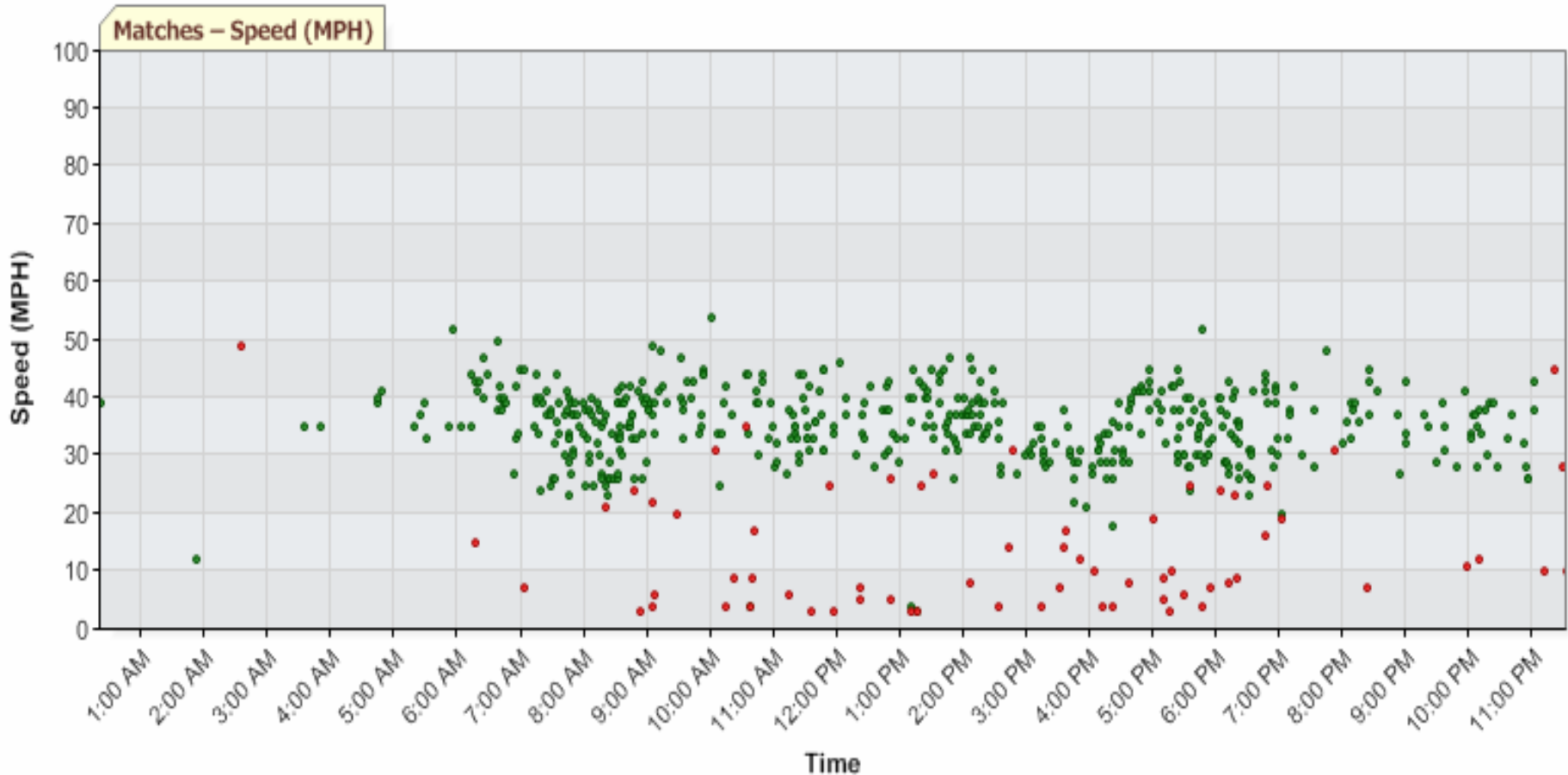


Signal Cabinet Type

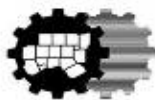


ICM Arterial Street Monitoring

Greenville Ave SB (Forrest to Walnut Hill)

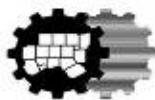


Arterial Street Diversion



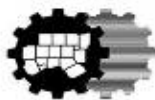
Diversion Routes

- Minor Incidents
 - 1-lane and shoulder blocked, <2-mile queue
 - Divert US 75 traffic to Frontage Road
- Major Incidents
 - 2-lanes or more blocked, 2 to 4-mile queue
 - Divert US 75 traffic to (any or all):
 - Frontage Road
 - Greenville Ave
 - Red Line light-rail transit



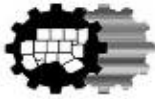
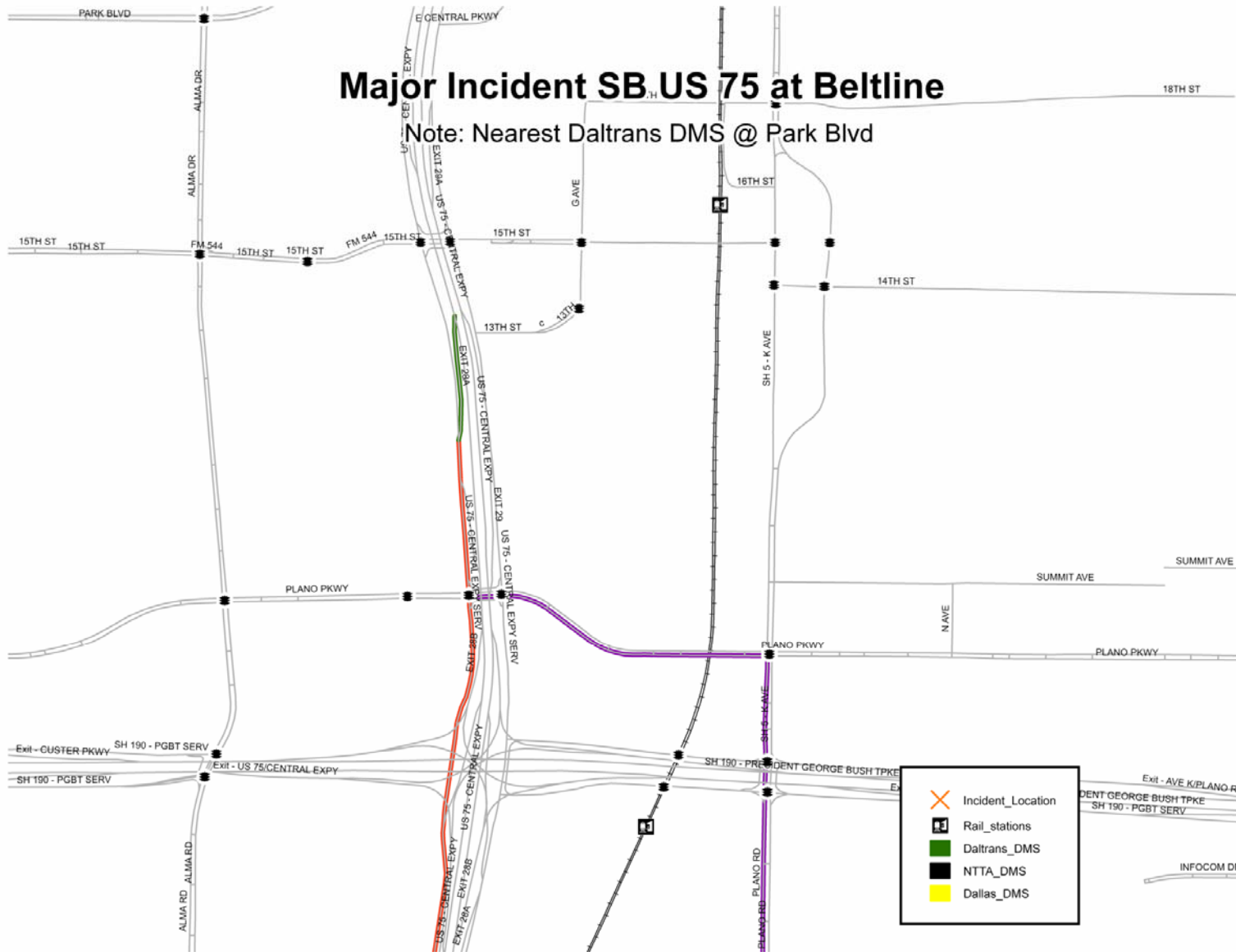
Diversion Routes

- Develop Response Plans to identify needed infrastructure
 - Traffic signals
 - Dynamic Message Signs
 - DART Available LRT Parking
- Only Strategic Arterials Used for Diversion
- Clearly Defined Diversion Routes
 - Use adaptive signal control to support
 - Use transit signal priority to support

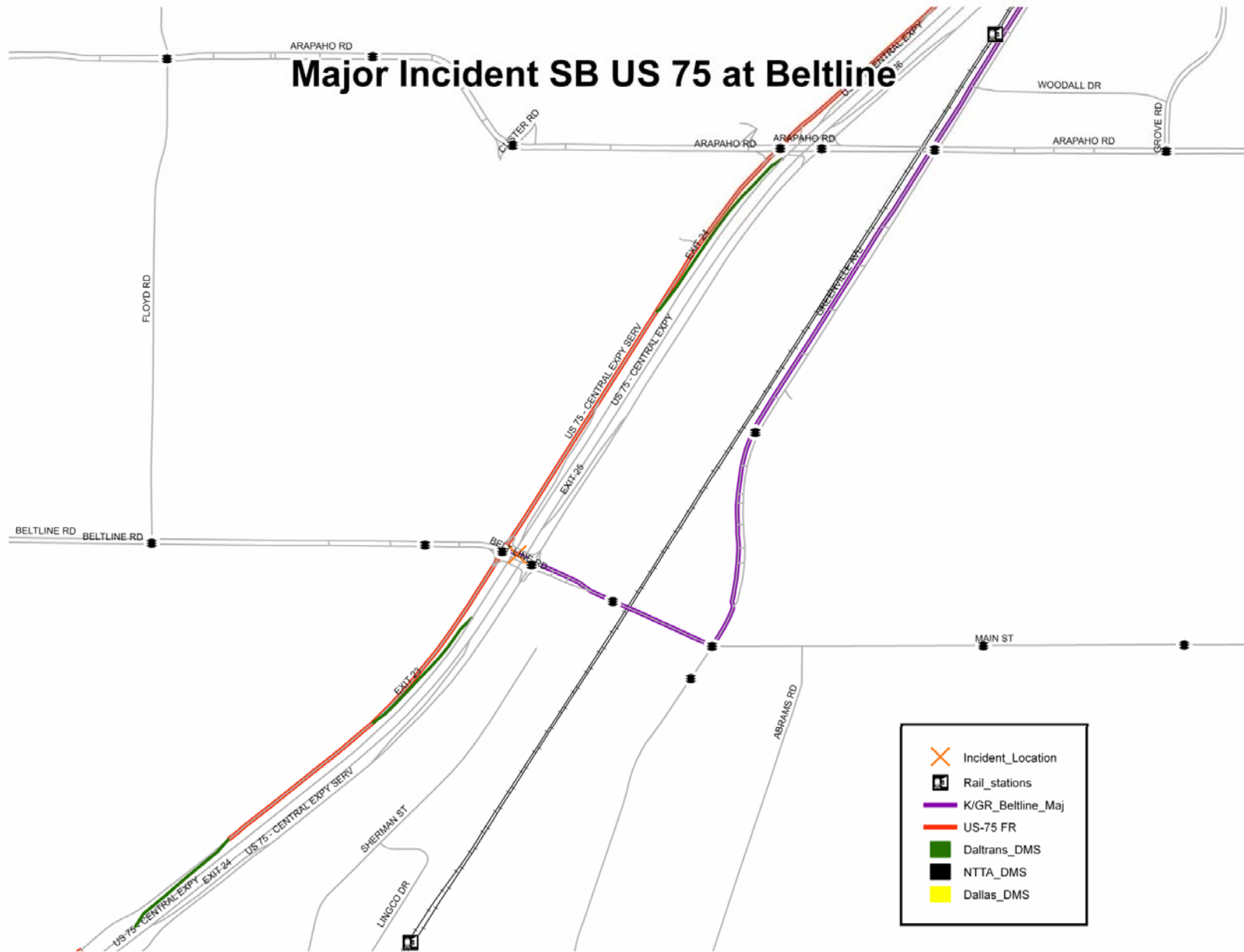


Major Incident SB US 75 at Beltline

Note: Nearest Daltrans DMS @ Park Blvd

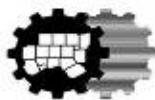


Major Incident SB US 75 at Beltline



ICM Project Status

- Completing Critical Design
 - USDOT Review in December
- 2012 - Develop & Deployment
 - Phased in deployment
- Early 2013 – Go Live
 - 6 months of “Shake Out”
 - 12 additional months of operation



For More Information

Christopher Poe, Ph.D. P.E.,

Assistant Agency Director

Texas Transportation Institute

(972) 994-0433; cpoe@tamu.edu

Koorosh Olyai, P.E., Assistant Vice President

Mobility Programs Development

Dallas Area Rapid Transit

(214) 749-2866; olyai@dart.org

