

Dallas

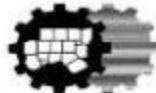
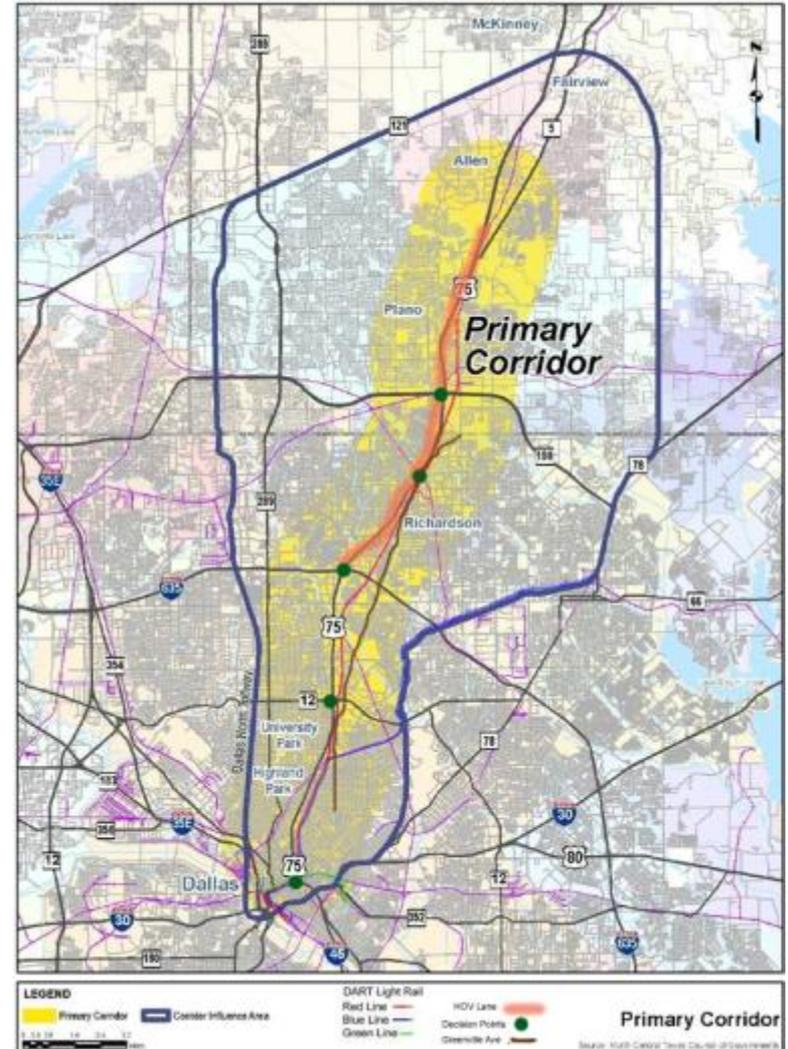
**Integrated Corridor Management
& Weather**

2013 Road Weather Management Stakeholder Meeting

**Ahmad Sadegh
Shawn Truelson
Schneider Electric**

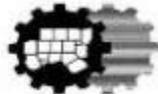
US 75 Corridor Networks

- Freeway with continuous Frontage Roads
- Managed HOV lanes
- Dallas North Tollway
- 167 Miles of Arterials
- DART Bus Network
- DART Light Rail
- 900 Signals
- Multiple TMCs
- Regional ATIS



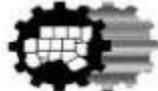
Analysis, Modeling & Simulation

	San Diego	Dallas	Minneapolis
Annual Travel Time Savings (Person-Hours)	246,000	740,000	132,000
Improvement in Travel Time Reliability (Reduction in Travel Time Variance)	10.6%	3%	4.4%
Gallons of Fuel Saved Annually	323,000	981,000	17,600
Tons of Mobile Emissions Saved Annually	3,100	9,400	175
10-Year Net Benefit	\$104M	\$264M	\$82M
10-Year Cost	\$12M	\$14M	\$4M
Benefit-Cost Ratio	10:1	20:1	22:1

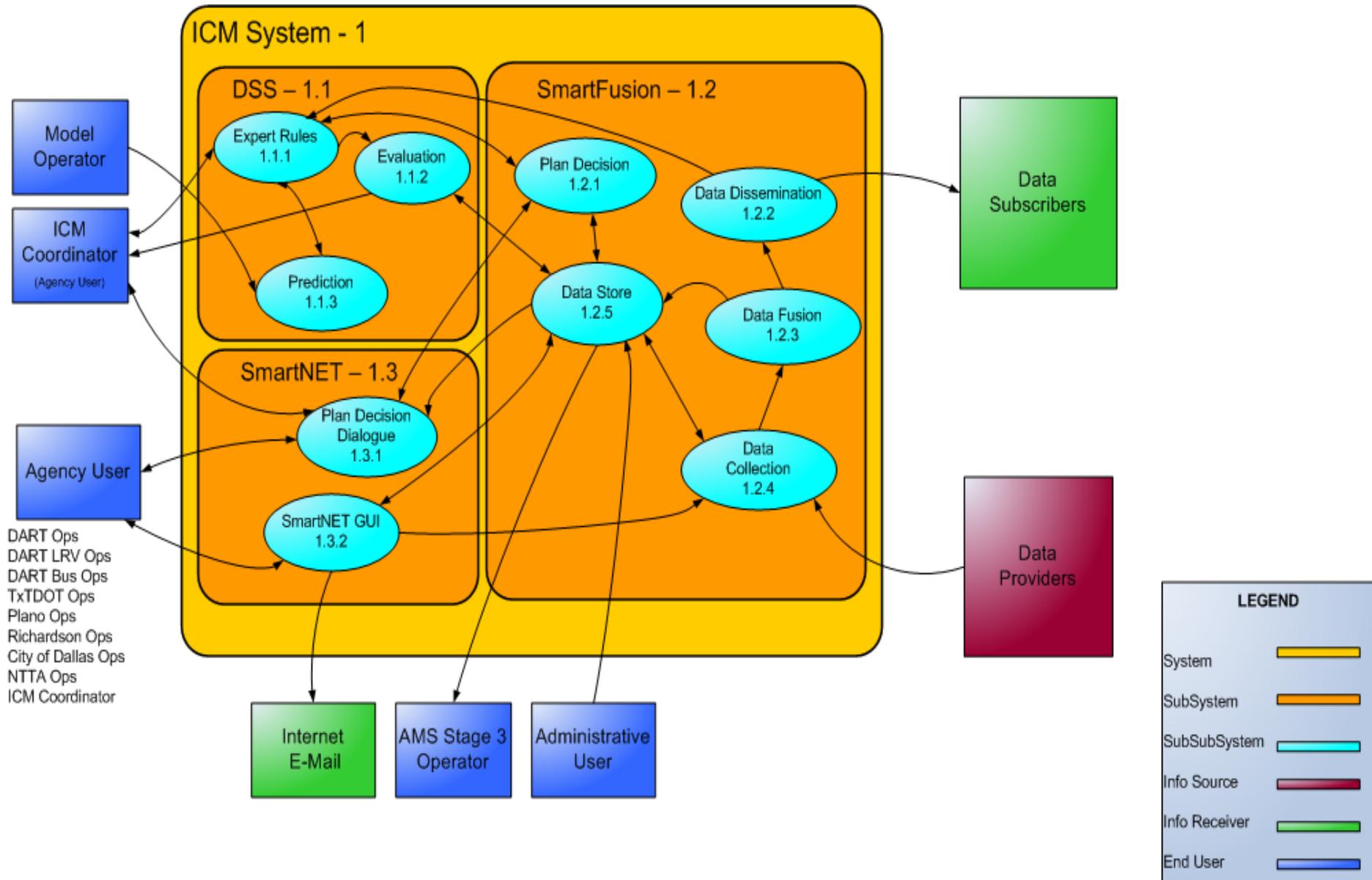


Committees & Lead Agencies

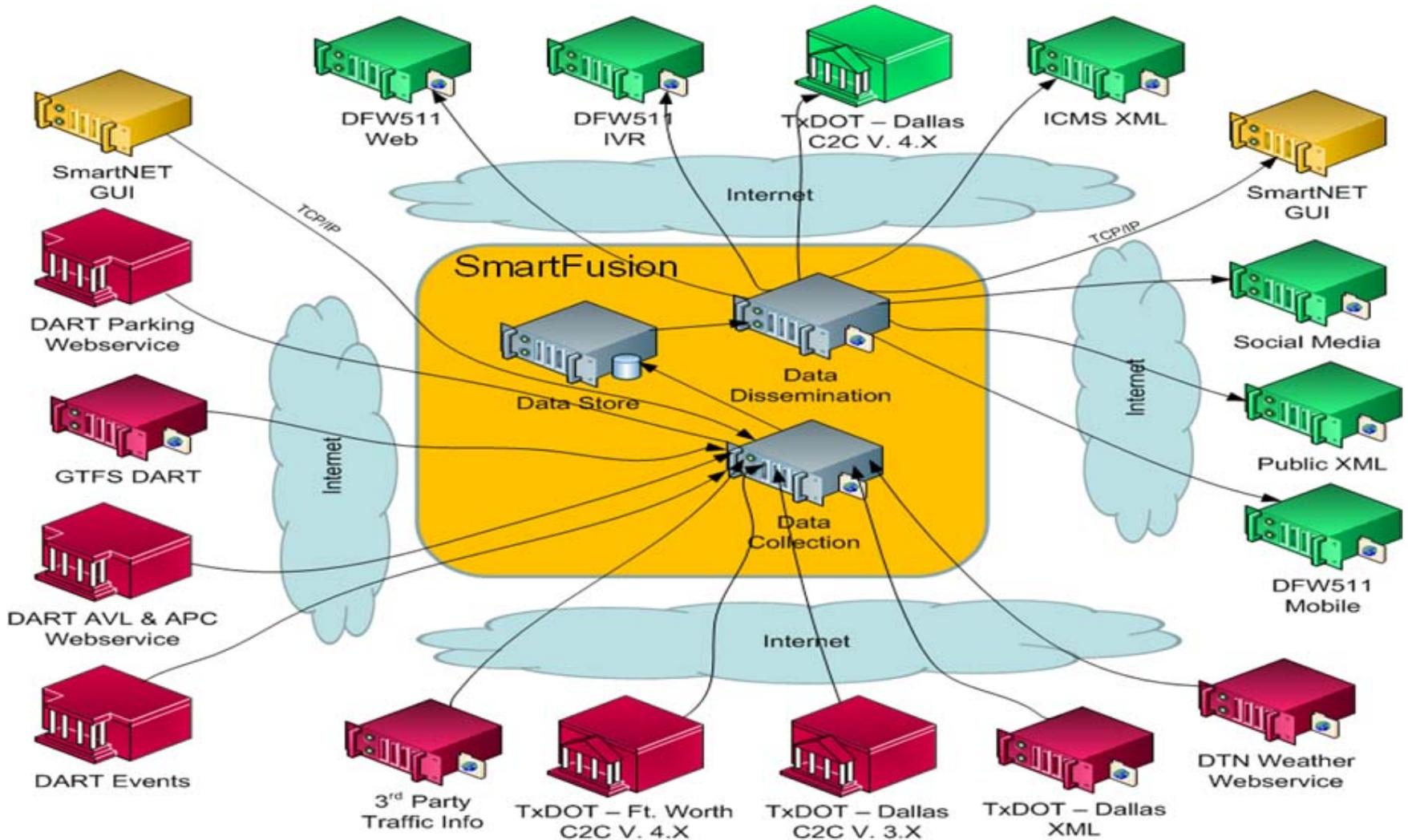
- Operations / DSS TxDOT
- Policy & Programming NCTCOG
- Signal Systems Richardson
- Transit Applications DART
- Outreach & Marketing DART
- SmartNet / SmartFusion DART
- Parking Management Plano
- Arterial Street Monitoring Dallas
- Video Sharing NCTCOG
- 511 System DART
- DART Data Portal DART
- C2C NCTCOG
- AMS / Evaluation DART



ICMS Logical Architecture

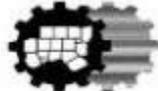


SmartFusion Data Feeds

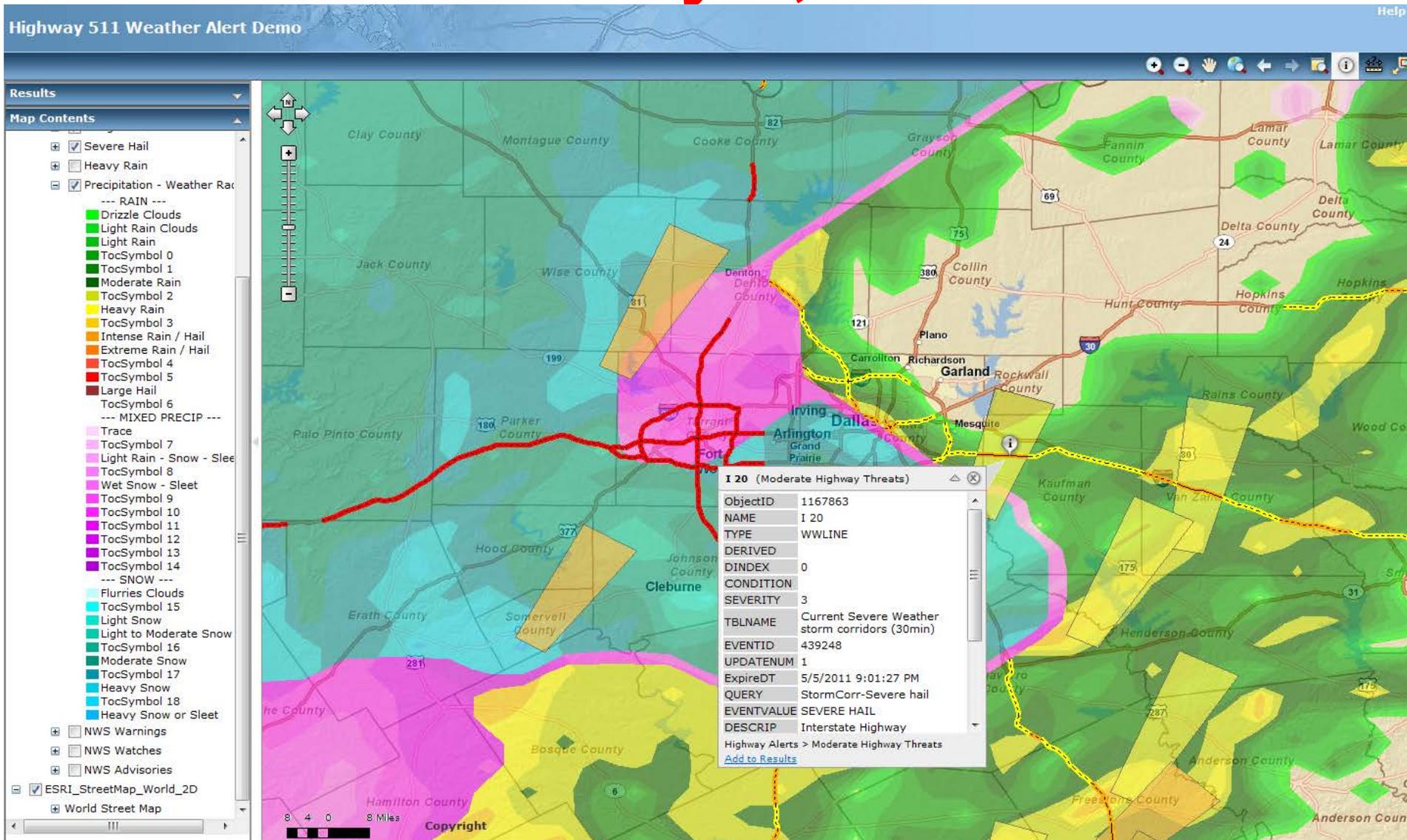


ICM Applications

- Responsive Traffic Signal System
- Arterial Street Monitoring System
- Third Party Data
- Parking Management
- Real-Time Transit Vehicle Information
- Freeway & HOV Systems
- **Weather**
- **SmartNET**
- **Decision Support System**
- **511**

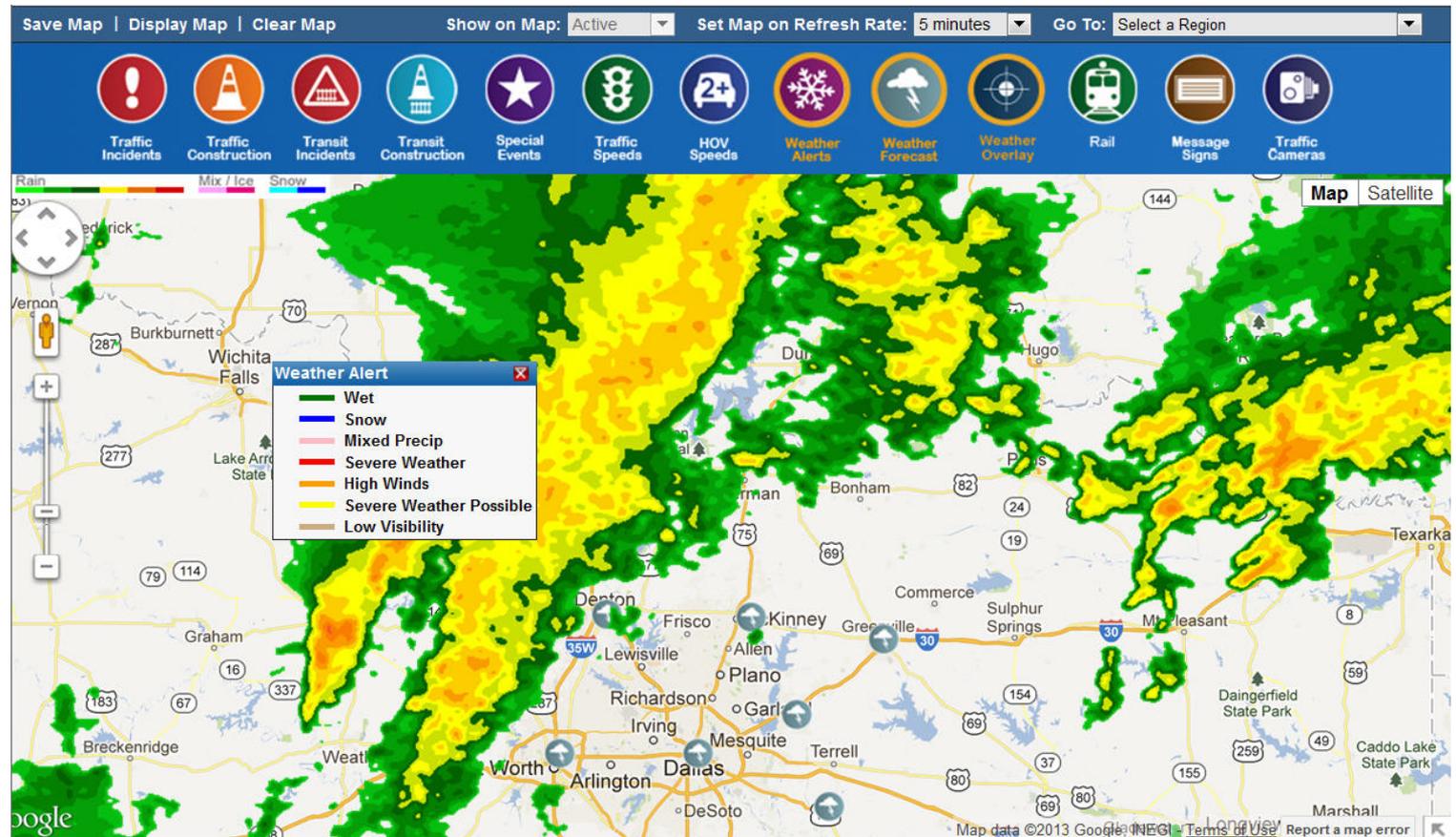


Severe Thunderstorm/Ice Storm February 1, 2011



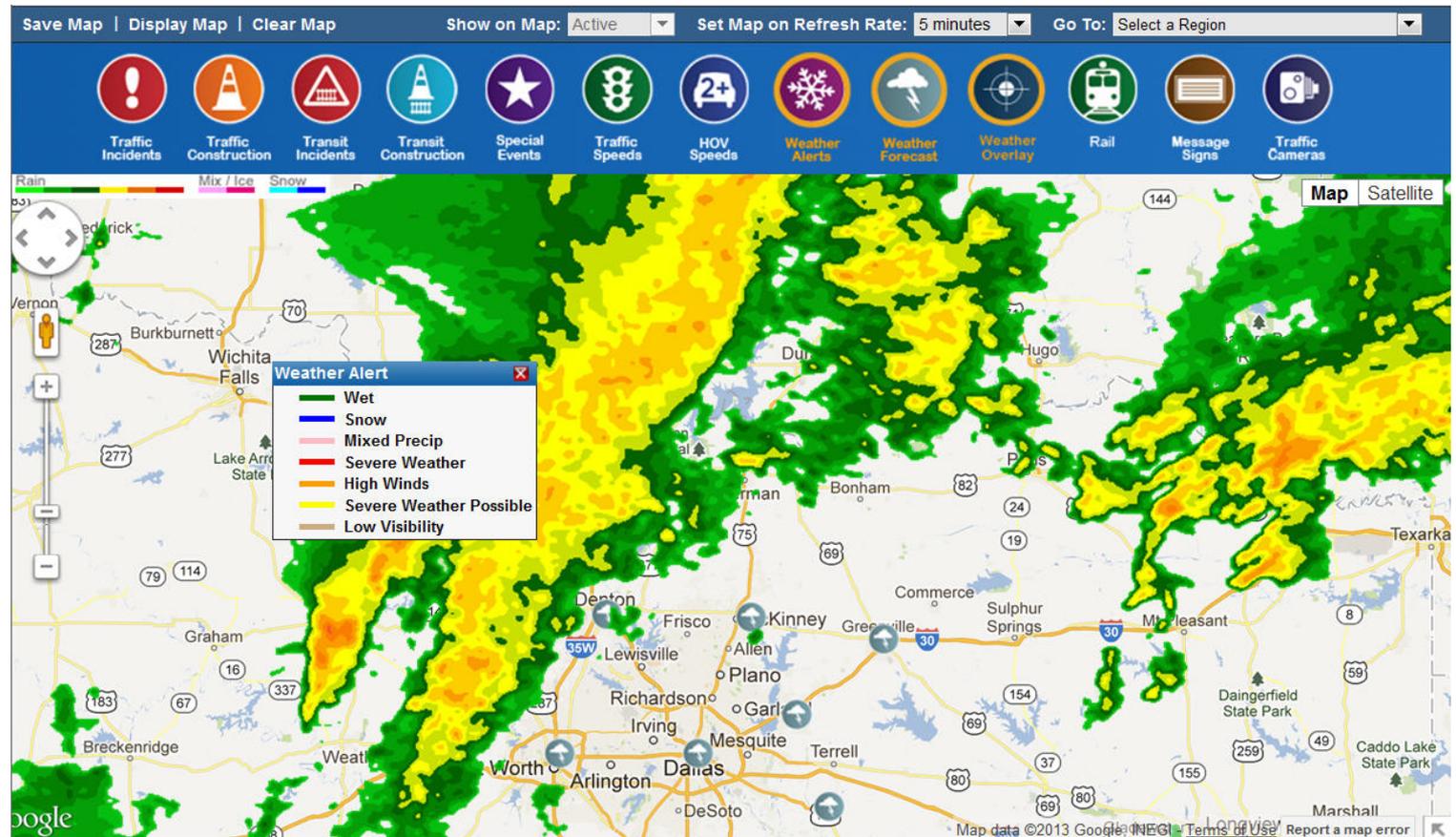
Real Time Weather Information

- Current weather conditions
- 5-day forecast
- Weather radar



Real Time Weather Information

- Current weather conditions
- 5-day forecast
- Weather radar



Roadway Specific Weather Alerts

511DFW

77° Mostly Sunny

ABOUT | CONTACT | FAQ | FEEDBACK

Hi, you're in Dallas. | Sign In

Select Your Region | Transit Trip Planner | My511 | Traffic and Transit Conditions | Travel Links | Search

ALERTS: There are no service alerts at this time.

Save Map | Display Map | Clear Map | Show on Map: Active | Set Map on Refresh Rate: 5 minutes | Go To: Select a Region

Traffic Incidents | Traffic Construction | Transit Incidents | Transit Construction | Special Events | Traffic Speeds | HOV Speeds | **Weather Alerts** | Weather Forecast | Light Rails | AVL | Message Signs | Traffic Cameras | Weather Overlay

Last Update: 11/17/2012 12:02PM
Severe Weather Alert: Tornado Warning

Weather Alert

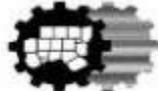
- Wet
- Snow
- Mixed Precip
- Severe Weather
- High Winds
- Severe Weather Possible
- Low Visibility

Same technology as in the Integrating *Clarus* Data with the 511 New York Traveler Information System, June 30, 2011

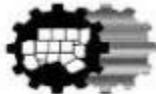
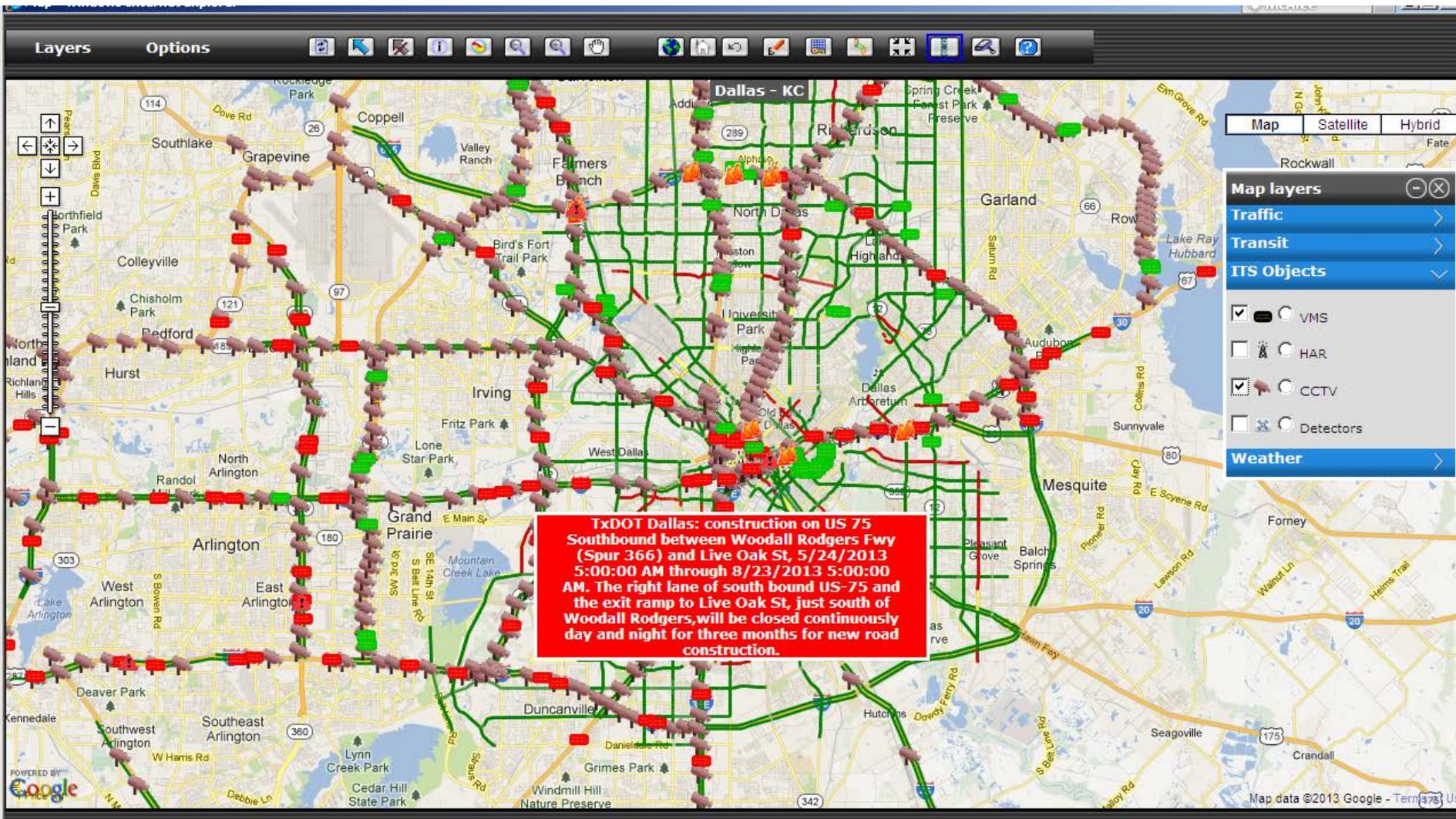
Map data ©2013 Google - Terms of Use | Report a map error

ICMS - SmartNET/ SmartFusion

- Information Exchange Tool & Backbone of ICM Network
 - Web Based Interface to ICM System
 - Data Fusion Engine
 - Allows entry and management of Incidents, Planned Events
 - Receives and Publishes data to the Regional C2C System & Other External Systems
 - Feeds Data to the 511 System, Decision Support System and Public

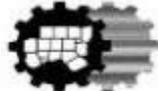


SmartNET Map Interface

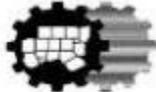
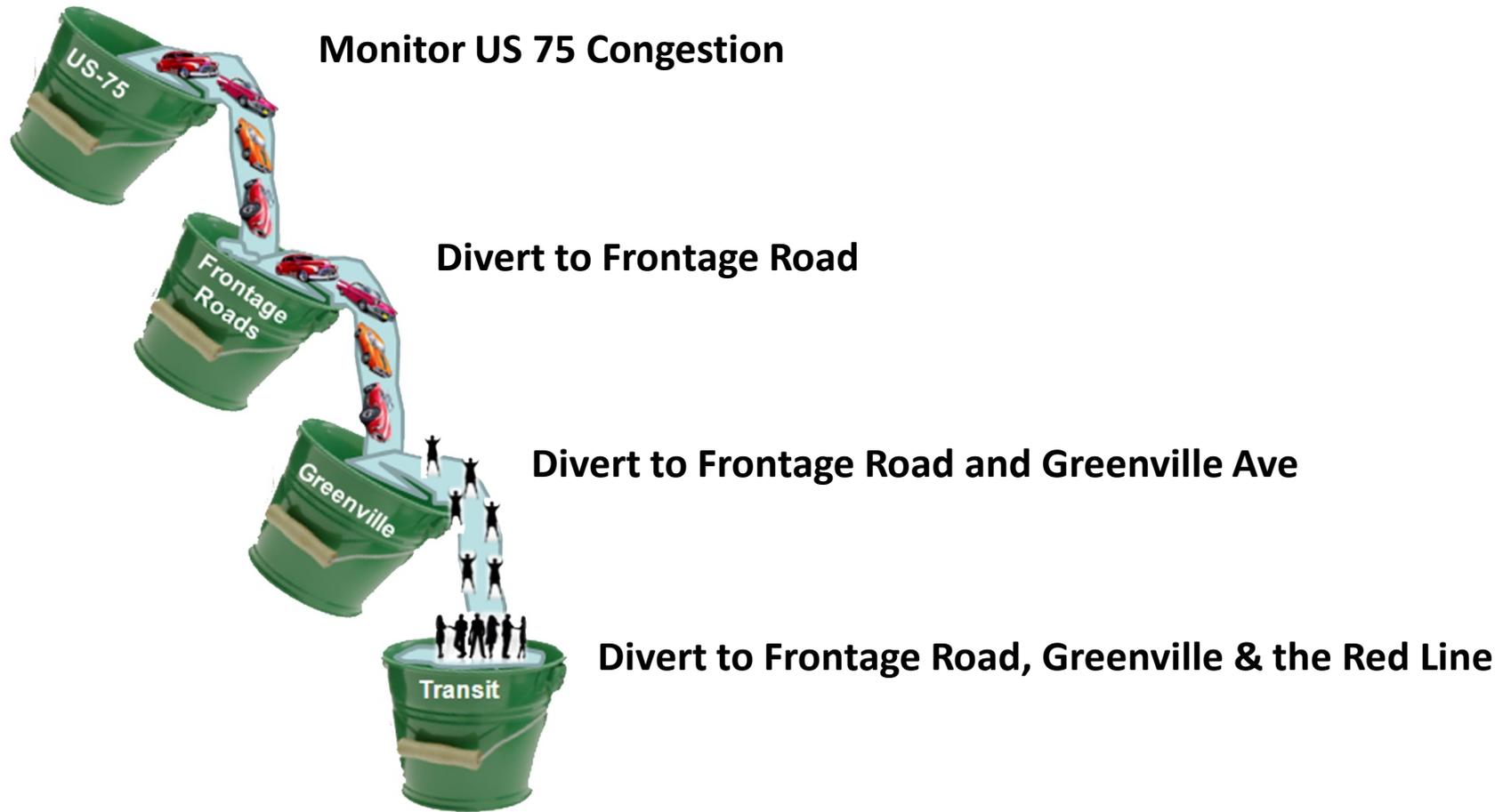


Decision Support System (DSS)

- Will assist operating ICM agencies with responding to incidents in a coordinated manner
- Multiple stage implementation
 - Manual Interaction – use developed response plans
 - Real-time Data Integration
 - Predictive Model Integration - Utilize Model to Predict 30 minutes into future



DSS Concept



DSS Rules for Response Plan Development

Strategies	Queue [mi]	Speed [mph]	No. Affected Lanes (GP & HOV)	Speed FR [mph]	Speed GV	Prediction MOEs	Park-n-Ride Utilization	Red LRT Utilization	More to Come...
Minor Incident : Short Diversion to FR .	$0.5 < Q < 1$	< 30	< 2	> 20	N/A	N/A	N/A	N/A	
Major Incident: Long Diversion to FR .	$1 < Q \leq 4$	< 30	≥ 2	> 20	N/A	?	N/A	N/A	
Major Incident: Diversion to FR. & GV.	$1 < Q \leq 4$	< 30	≥ 2	> 20	> 20	?	N/A	N/A	
Major Incident: Diversion to FR. & GV, Transit	$Q > 4$	< 30	≥ 2	> 20	> 20	?	$< 90\%$	$< 90\%$	
Alert (Send Heads Up Notification to ICM Coordinator, "N-1")									

FR = Frontage Rd.

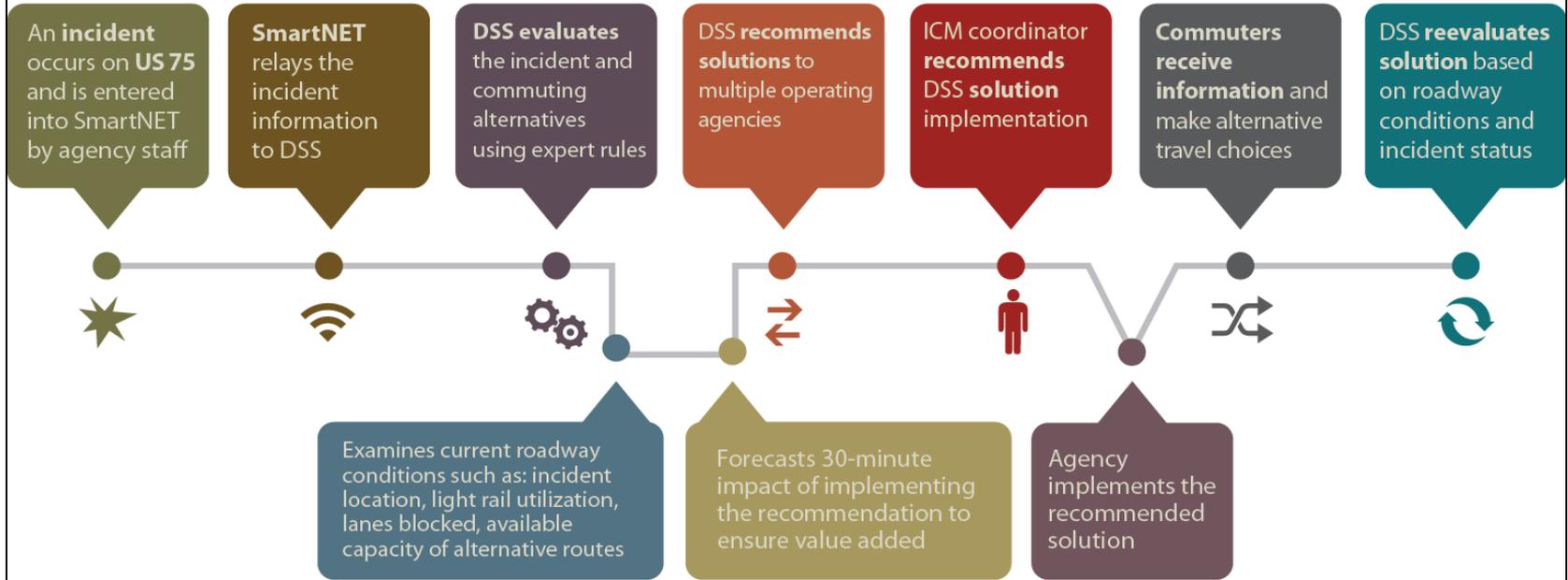
GV = Greenville

Q = Queue in US-75 main lanes

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



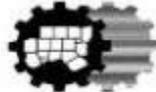
Enhanced decision making support for operating agencies



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

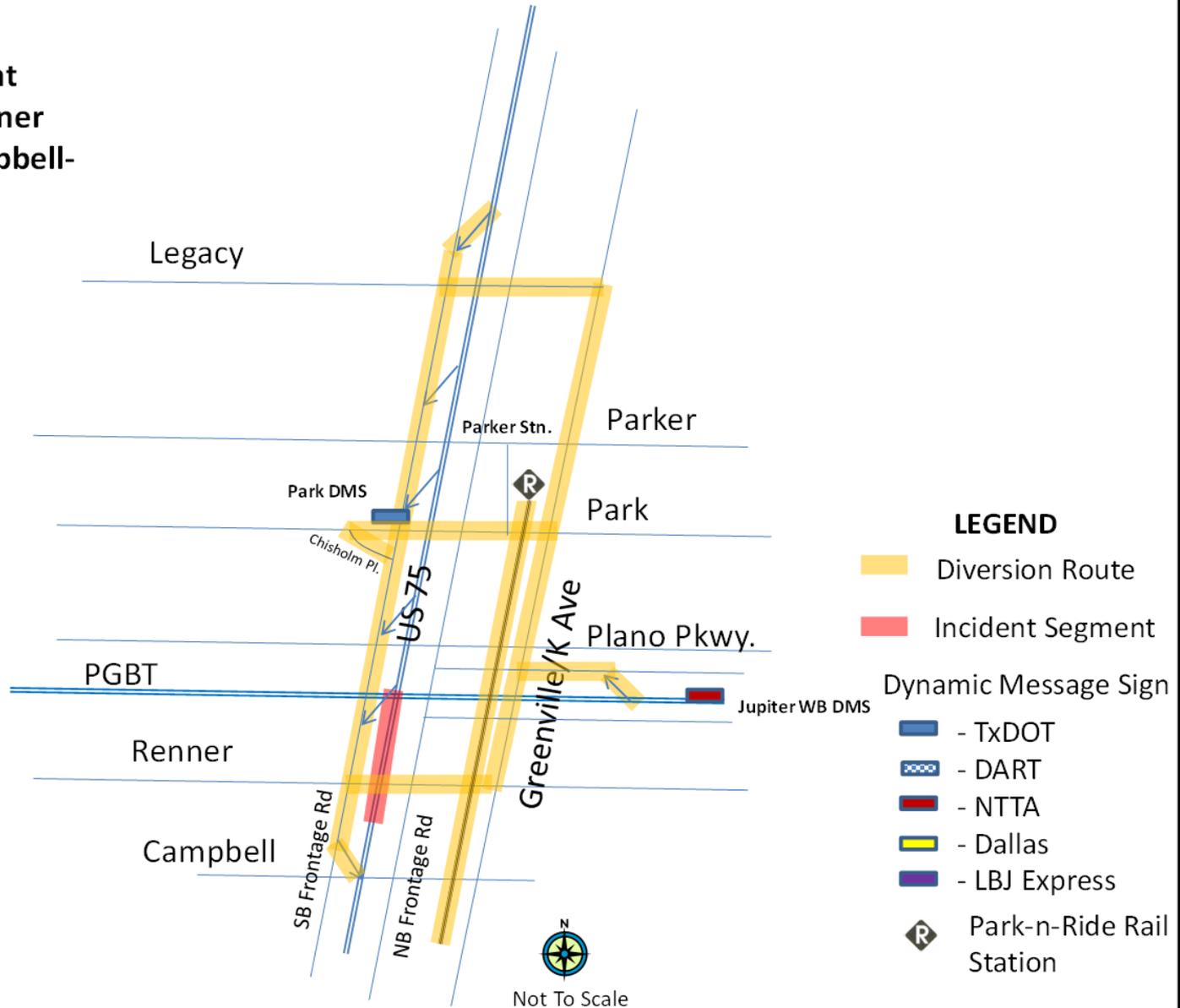


Less pollution from idling vehicles in congested traffic



Typical DSS Response Plan

J 75 S 266
Major Incident
between Renner
Exit and Campbell-
Galatyn Exit



Required Actions

Plano

- **Frontage road: activate signal timing signal plan #32 and monitor every 15 min.**

Native Signal ID	Name	SmartNet Signal ID	DIRECT Signal ID
4324	CENTRAL @ NORMAN WHITSITT	1010147250	4408
4318	CENTRAL @ PLANO	1010147190	4418
4331	CENTRAL @ PARK	1010147320	17

- **Greenville/K Avenue: activate signal timing signal plan #34 and monitor every 15 min.**

Native Signal ID	Name	SmartNet Signal ID	DIRECT Signal ID
4695	PARK @ STATE HWY 5	1010151710	18
4332	18TH @ STATE HWY 5	1010147330	78
4330	15TH @ STATE HWY 5	1010147310	N/A
4329	14TH @ STATE HWY 5	1010147300	4280
4322	PLANO @ STATE HWY 5	1010147230	4282
4321	PLANO RD @ PGBT WB FR	1010147220	4286
4697	FM 2514 @ STATE HWY 5	1010151730	5708



Schedule

- **Soft Launch – April 26, 2013**
- **Shake out period – Six months**
- **Hard Launch – October 2013**

