Dallas ICM & 511 System

87th Annual Transportation Short Course

October 16, 2013
Agenda

• Introduction
• ICM Overview
• 511 Overview
• Next Steps / Schedule
• Q&A
What is ICM?

- The integrated management of freeway, arterial, transit, and parking systems within a corridor

- Management of the corridor as a system, rather than the more traditional approach of managing individual assets
US DOT ICM Pioneer Sites

3 Stages for the Pioneer Sites:

- Stage 1 – Concept of Operations, Sample Data, and Requirements
- Stage 2 – Analysis, Modeling, and Simulation
- Stage 3 – Demonstration and Evaluation
Dallas-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.
Why ICM is needed in Dallas-US 75?

- DFW is the 5th most congested region in US
- #1 worst region for growth in congestion
- Population is over 6 million, adding 1 million every 7-8 years
- US 75 is a critical, regional corridor
- Travel demand and congestion continues to grow
- No ability to expand freeway, arterials, or alternate routes
- Other freeways are scheduled for construction
- Significant employers in corridor
- Numerous special events throughout year
- Showcase for ITS integration in the region
How can ICM help?

• Individual agencies are operating their systems well
• Opportunities for advancement are in coordinated management
• Need alternatives for travelers, especially transit
• Need common, reliable data platforms for decision making
• Building on existing institutional arrangements was a key to building consensus
• Need to build trust with the public on accuracy and reliability of information
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
ICM Strategies

• **Advanced Traveler Information (all scenarios)**
  – Better pre-trip, en-route, and multi-modal information

• **Route Diversion Strategy (minor incident)**
  – Diverts traffic to parallel frontage roads

• **Route Diversion Strategy (major incident)**
  – Diverts traffic to frontage road and strategic arterials

• **Mode Diversion Strategy (major incident)**
  – Diverts travelers to DART Red Line

• **Combined Route and Mode Diversion Strategy**
  – Diverts travelers to frontage roads, strategic arterials, and DART Red Line
## Benefits of ICM

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

- SmartNET & SmartFusion
- Decision Support System
- 511 System
- Freeway Management
- HOV Lane Monitoring
- Arterial Street Monitoring
- Responsive Traffic Signal
- Transit Signal Priority
- Parking Management
- Real Time Transit Vehicle Info
- Regional Trip Planner
- Weather Integration
- DART Data Portal
- Video Sharing Network
- External Data Sources
- Training
- O&M
- Marketing
- AMS & Evaluation Support
Freeway Management

Diversion Plan:

**Minor Incidents** 1-lane and shoulder blocked, <2-mile queue
- Divert US 75 traffic to Frontage Rd

**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
Arterial Street Monitoring

- Proven Bluetooth Technology
- Have deployed about 40 detectors along diversion routes
- DSS will use Travel Time and Speeds on diversion routes to select recommended plan
- External Data Sources
Real Time Transit Vehicle Information

• Install APC on all Red Line cars.

• Transmit and integrate real time AVL and APC data to ICM System.
Parking Management

• 5 Park & Ride lots along LRT Red Line
• Monitor availability at each Park & Ride lot
• Publish to 511 System
• Publish to TxDOT DMS
Integrated Corridor Management (ICM) Decision Support System (DSS)
Alternatives for Agencies, Options for Commuters When Incidents Occur on US 75

**THE PROCESS**

- An incident occurs on US 75 and is entered into SmartNET by agency staff
- SmartNET relays the incident information to DSS
- DSS evaluates the incident and commuting alternatives using expert rules
- DSS recommends solutions to multiple operating agencies
- ICM coordinator recommends DSS solution implementation
- Commuters receive information and make alternative travel choices
- DSS reevaluates solution based on roadway conditions and incident status

![Diagram](image)

**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

![Logos](image)
Multimodal Traffic and Transit Information disseminated through:

- A Public Web Site
- Interactive Voice Response (IVR)
- A Mobile Web Site and Mobile Application
- My511 (Web, IVR, Alerts)
- Social Media
WELCOME TO 511DFW

511DFW is the Dallas and Fort Worth Region’s official traffic and travel info source. Whether you drive or take public transit, 511DFW will help you reach your destination in the most efficient manner. Wherever you’re going, 511DFW will get you there from here.

To learn more about 511DFW, see our Frequently Asked Questions (FAQs).
ALERTS: There are no service alerts at this time.
TRIP RESULTS

From: 1401 Pacific Avenue, Dallas, TX 75202, USA
To: Plano, TX, USA

Itinerary 1: 44 mins

Walk to Akard Station
(About 2 mins - 0.1 mi)
Akard Station - Depart 5:17pm
ORANGE Light rail towards E - Orange Line - Parker Road
Downtown Plano Station - Arrive 5:54pm
(38 mins, 14 stops)

Walk to 1101-1125 East 15th Street, Plano, TX 75074, USA
(About 5 mins - 0.2 mi)

Itinerary 2: 44 mins

Itinerary 3: 44 mins

Itinerary 4: 44 mins
Reported By: Dallas: special event State Fair of Texas on Grand Ave both directions at 2nd Ave (Dallas), Friday September 27th, 2013 thru Sunday October 20th, 2013, Entire week/Friday/Saturday, 10:00 AM thru 10:00 PM, Friday September 27th, 2013 thru Sunday October 20th, 2013, Sunday/Monday/Tuesday/Wednesday/Thursday, 10:00 AM thru 09:00 PM
Recent Dallas Ice Storm
Personalize Your Travel Information Experience with My511DFW

You can now quickly access traffic and transit conditions for your commute and other frequent trips you make. The service is free and easy to use. Just set up your profile and you will be ready to use My511DFW.

Follow the steps below for setting up your My511DFW travel and transit preferences:

- Click on the "Sign Up" button and create your user profile.
- Set up your traffic and travel time preferences
- Set up your transit preferences
- Verify your account upon receiving an email confirmation.

Get traffic and transit conditions on the PHONE

Listen to Demo >>

Get traffic and transit conditions on the WEB

View Sample Page >>
Cost

- Funded by the US DOT $5.31M
- Local Share by project partners (over $3M)
- DART share from existing expenses
- Total project value $8.38M
- Additional federal funds ($0.9M)
Schedule

- 511 Go-Live (Soft Launch): April 2013
- 511 Go-Live (Hard Launch): October 2013
- 1 Year demonstration ends October 2014
For More Information

Ravi Gundimeda
Project Manager
Mobility Programs Development
Dallas Area Rapid Transit

(214) 749 – 3685
rgundimeda@dart.org
Next Steps

• Continue thinning out pylons
• Continue Signing Improvements
• Determine access/egress type including full split access/egress
• Update and Complete the Report
• TxDOT will call a Meeting after August 15