



Photo Source: USDOT

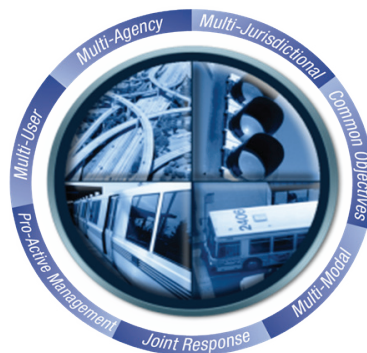
INTEGRATED CORRIDOR MANAGEMENT (ICM) DEMONSTRATION SITES



The U.S. Department of Transportation (USDOT) selected two corridors—US-75 in Dallas, TX, and I-15 in San Diego, CA—to demonstrate the nation’s first ICM systems as part of the Department’s ICM Initiative. The sites began actively deploying their systems in spring 2013.

While having distinct characteristics and challenges, the Dallas and San Diego demonstration sites developed their ICM systems using a process grounded in systems engineering principles. Both sites require collaborative institutional relationships between multi-jurisdictional agencies.

Both sites also developed and are implementing near real-time **decision support systems (DSS)** to coordinate ICM across their regions. This technology processes information on conditions in the corridor and recommends response plans containing optimal combinations of multimodal operational strategies to deploy to prevent or lessen the effects of congestion—both recurring and non-recurring.



The ICM approach involves monitoring and managing multiple assets - such as freeways, arterials, buses, and rail - through a common “lens” to improve overall corridor performance.

ICM Vision:

The vision of ICM is that cities, towns, and regions will realize significant improvements in the efficient movement of people and goods through proactive integration and management of major transportation corridors. With ICM, individual agency or network actions will be based on conditions within and impacts across the entire corridor for a smoother travel experience.

Want to learn more? Check out the full ICM fact sheet series:

- ICM Overview
- ICM Pioneer Sites
- ICM Demonstration Sites
- ICM Analysis, Modeling, and Simulation
- ICM Decision Support Systems
- ICM Knowledge and Technology Transfer

Visit the [ICM Knowledgebase](#) to access documents developed by the demonstration sites.



Photo Source: Dallas Area Rapid Transit (DART)

Strategies and Partners at the ICM Demonstration Sites

	Example DSS Response Plan Strategies	Partners
Dallas	<ul style="list-style-type: none"> • Divert onto frontage roads, arterials, and/or light rail, depending on severity of event on freeway • Implement dynamic signal timing to maximize throughput on diversion routes • Provide real-time information on traffic conditions (including speeds), public transit, and parking availability through 511 system • Provide diversion recommendations (including mode shift to light rail) on dynamic message signs, under certain conditions 	<ul style="list-style-type: none"> • Dallas Area Rapid Transit • City of Dallas • Town of Highland Park • North Central Texas Council of Governments • North Texas Tollway Authority • City of Plano • City of Richardson • Texas Department of Transportation • City of University Park
San Diego	<ul style="list-style-type: none"> • Provide en-route and pre-trip traveler information and enhanced transit network information through a new 511 smartphone app for trip decision-making • Coordinate signal timing with ramp meters to optimize mode shifts between the freeway and arterials • Deploy dynamic wayfinding signs on arterials to re-direct diverted traffic back to freeways 	<ul style="list-style-type: none"> • San Diego Association of Governments (SANDAG) • California Department of Transportation • City of Escondido • Metropolitan Transit System • North County Transit District • City of Poway • City of San Diego



U.S. Department of Transportation




Photo Source: USDOT

Deployment Update

The Dallas and San Diego stakeholders are actively monitoring traffic, applying their DSS, and implementing recommended response plans on their ICM corridors. Stakeholders at each site meet regularly to discuss why certain plans have or have not been implemented. This feedback helps to continuously reassess the system's functionality and make adjustments as needed.



"Working with our partners, ICM has provided the venue for establishing the technical, operational, and institutional platform for allowing our existing ITS investments to work together; collect, analyze, and share data; and implement corridor level response plans in real time."

Alex Estrella, SANDAG
Project Manager for I-15 ICM Project

In Dallas, the project team initially designed their DSS to require an ICM coordinator to approve recommended response plans before sending them to the implementing agencies. They have decided to remove this requirement so that stakeholders receive the plans directly. With over 400 response plans already developed, the team continues to assess whether plans should be added, removed, or revised to optimize their effectiveness.

In San Diego, response plans were originally set not to be implemented if no agencies reviewed the plan within a specific timeout period. However, within a few months of deployment, the stakeholders were sufficiently comfortable with the ICM system to allow response plans to be automatically implemented after the timeout period. Response plans are automatically selected if they achieve a certain score, based on their anticipated effectiveness. The project team is continuing to adjust this score so that more plans can be deployed in the field and measured for effectiveness.

Early Lessons Learned

The demonstration site teams noted some sample early lessons learned including:

- Regular communication and meetings with partner agencies are a valuable resource and critical throughout the project lifecycle, as they foster understanding and perspective.
- Following the systems engineering "V" process can be challenging at first, but provides an essential technical platform for building a robust design.
- Collecting and processing the necessary data can be one of the most time-intensive aspects of planning and designing an ICM system, and figuring out how to use that data post-deployment can be a challenge.
- Performance measures and evaluation criteria should be considered very early in the planning process and kept as a priority throughout design and implementation.
- Agencies should keep post-deployment operations and maintenance (O&M) in mind when designing their systems and identify funding sources and regional agreements and policies for O&M in advance.

Stay Tuned

The USDOT will continue to disseminate guidance and lessons learned from the demonstrations so that agencies interested in pursuing ICM can shape approaches that work best for their corridor. The USDOT is also conducting independent "before-after" analyses at both sites to evaluate the benefits of ICM on transportation operator situational awareness, response and control, traveler information, and overall corridor performance.



For more information about this initiative, please contact:

Steven Mortensen
Federal Transit Administration | (202) 493-0459
steven.mortensen@dot.gov | www.its.dot.gov

Neil Spiller
Federal Highway Administration | (202) 366-2188
neil.spiller@dot.gov | www.its.dot.gov

Robert Sheehan
ITS Joint Program Office | (202) 366-6817
robert.sheehan@dot.gov | www.its.dot.gov