# Integrated Corridor Management

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# Agenda

- Background
- ICM Program
- ICM Fundamentals
    - What is a corridor?
    - Integration challenges
    - Management approaches
- Demonstration Sites
- Next steps

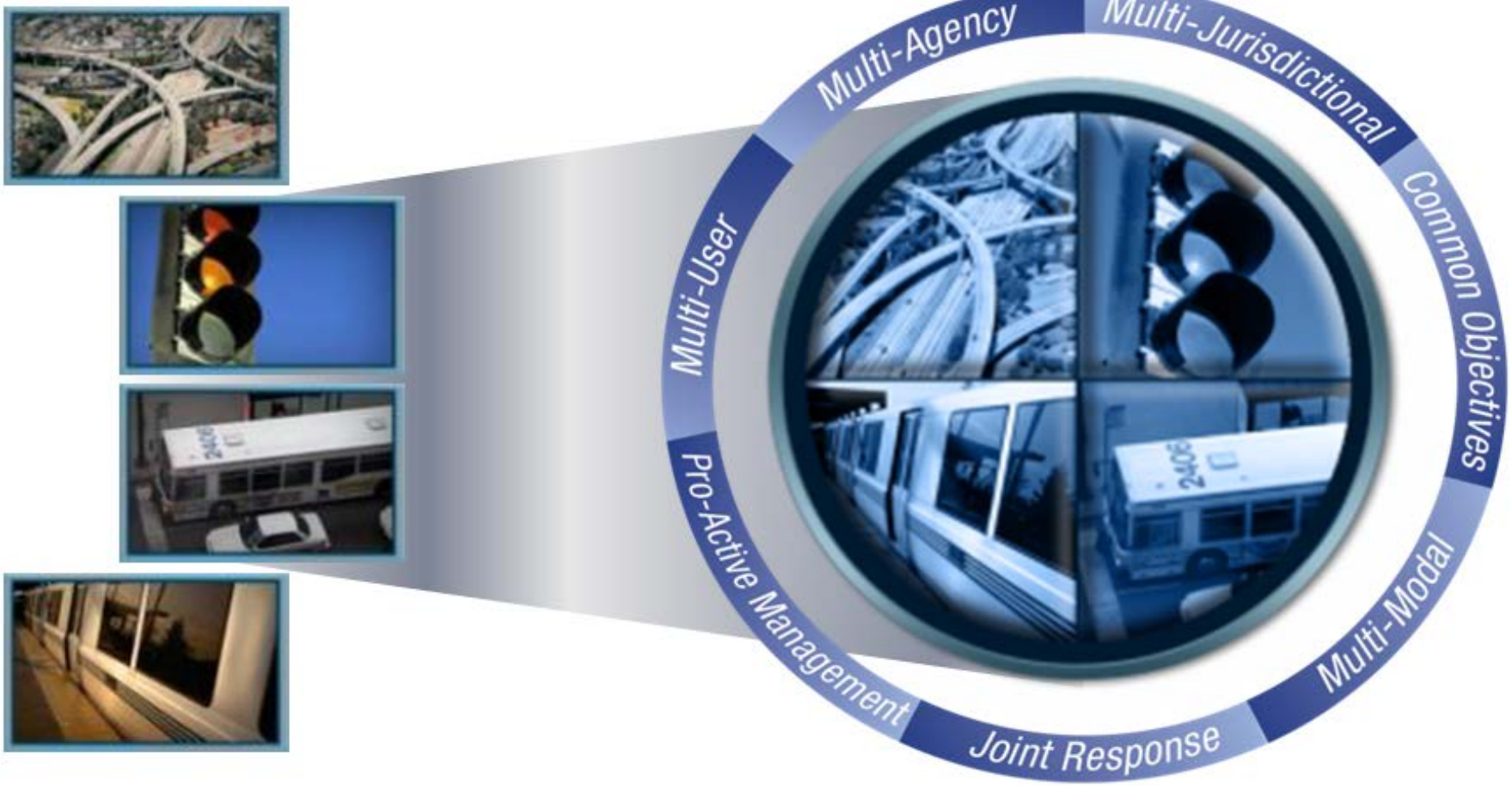
# The Reality: Operations Today

- Surface transportation systems are made up of several independent networks
  - Freeways, bus/rail transit, arterials, etc.
- Most efforts to reduce congestion have focused on optimization of individual networks
  - Agency/facility/mode – specific ITS systems & strategies
- Minimal cross-network management in response to increased demand / reduction in demand

# ICM Program Vision

- An opportunity exists to realize significant improvements in the efficient movement of people and goods through aggressive and proactive management of major multimodal transportation corridors

# Integrated Corridor Management



*San Diego, CA (I-15)*

*Dallas, TX (US 75)*

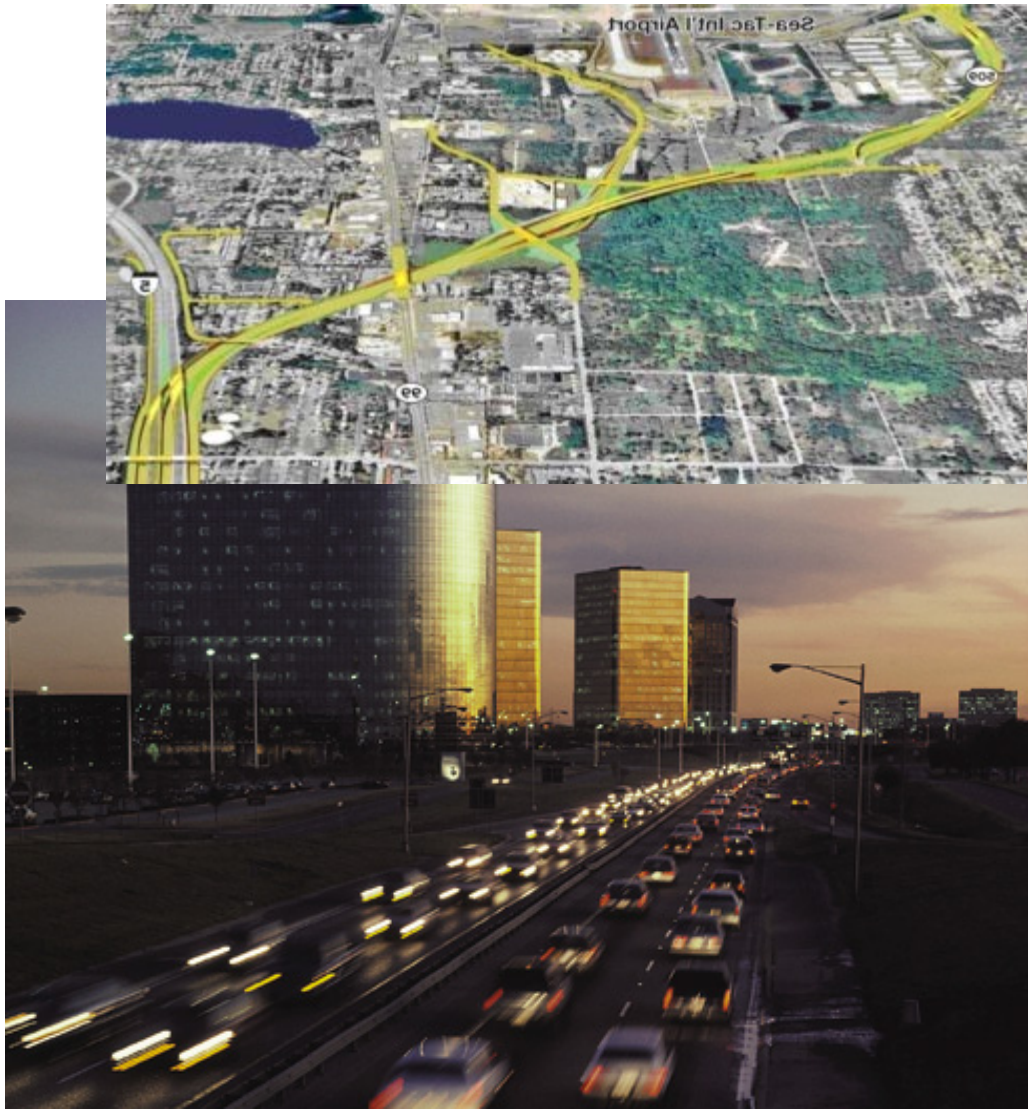
**Pioneer Sites**
Dallas, TX
Houston, TX
Minneapolis, MN
Montgomery County, MD
Oakland, CA
San Antonio, TX
San Diego, CA
Seattle, WA

# Integrated Corridor Management

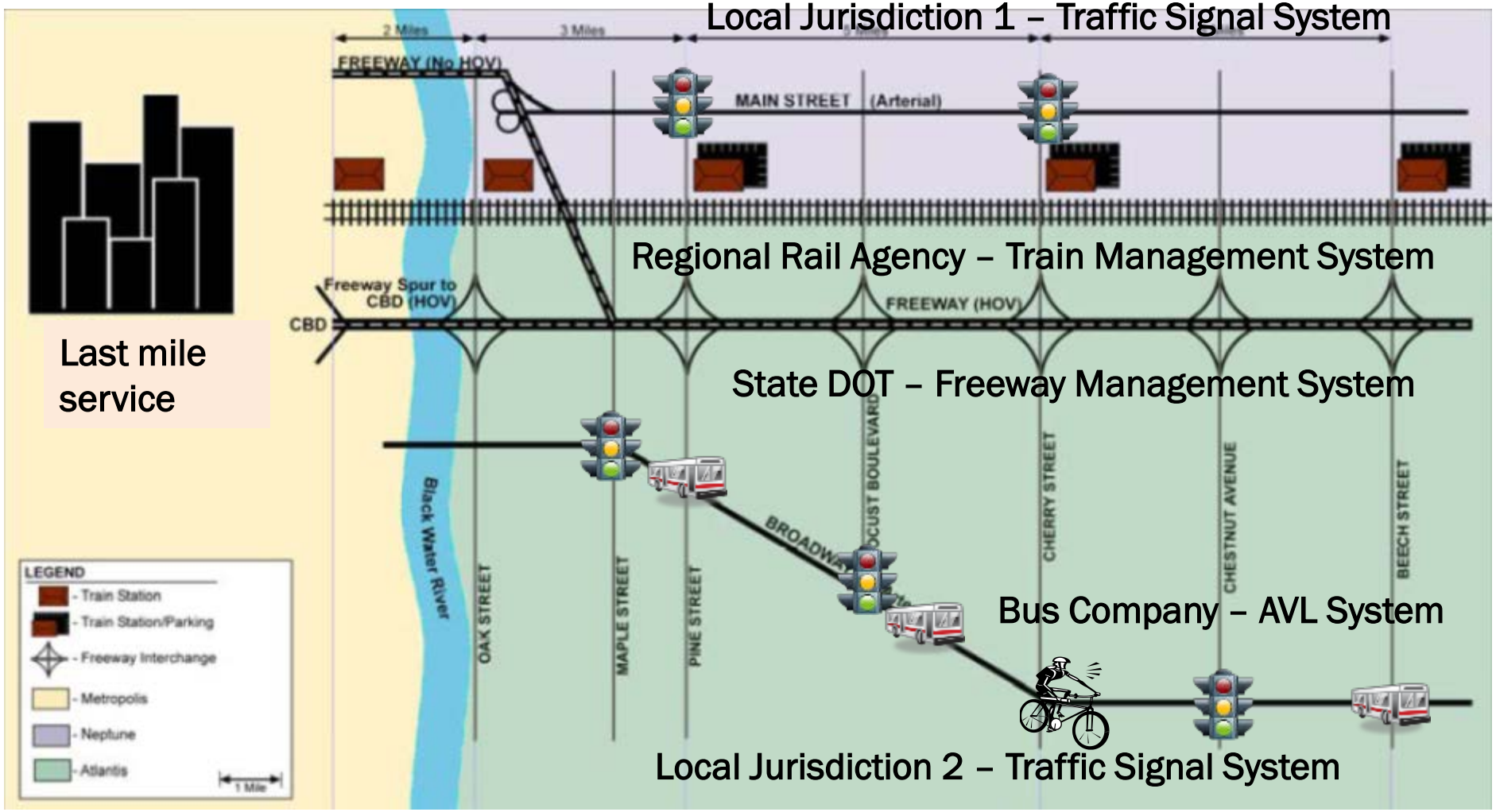
Let's take a closer look…

# Corridor

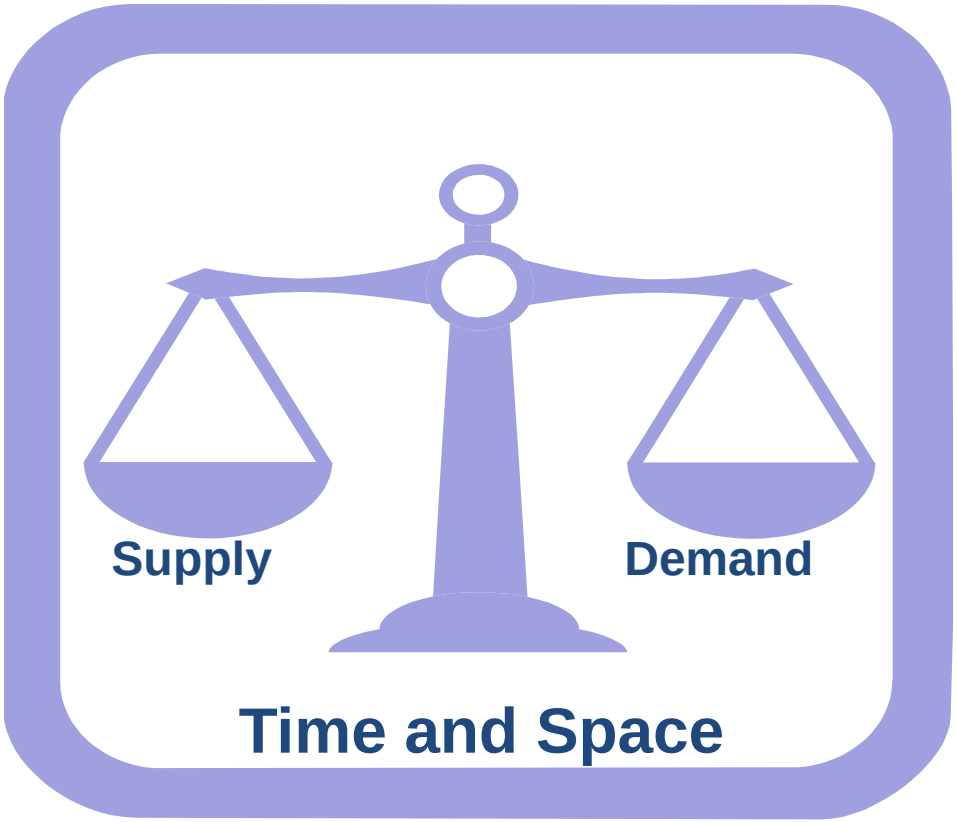
- Travel shed
- Linear geographic band
- Movement of people, goods, and services within and through the corridor
- Similar transportation needs and mobility issues
- Various networks that provide similar or complementary transportation functions
- Cross-network connections



# Generic Corridor



# Approaches and strategies based on the concept of **Load Balancing**



# Integrated

**Institutional Integration**

Coordination to collaboration between various agencies and jurisdictions that transcends institutional boundaries.

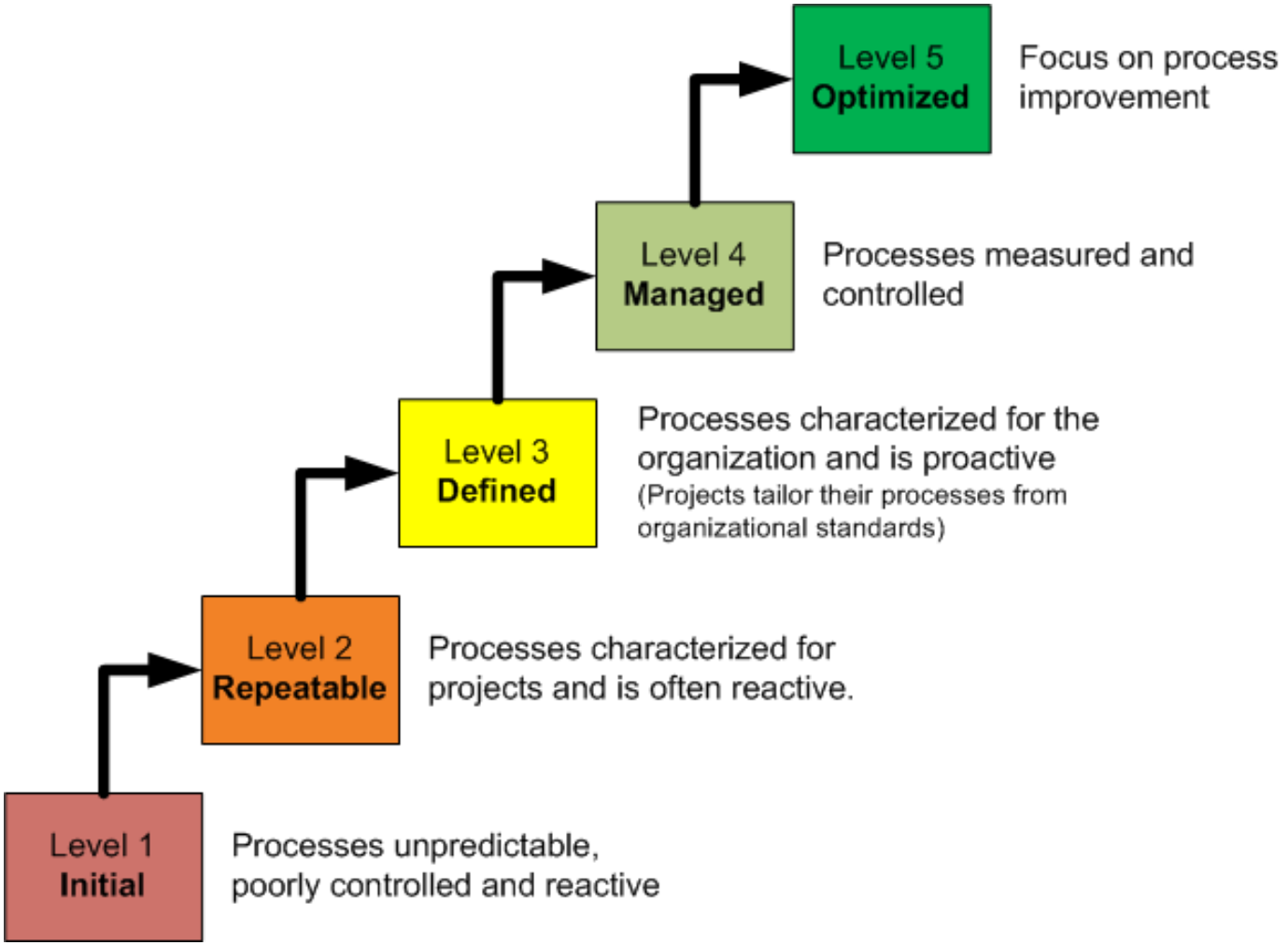
**Operational Integration**

Multi-agency and cross-network operational strategies to manage the total capacity and demand of the corridor.

**Technical Integration**

Sharing and distribution of information, and system operations and control functions to support the immediate analysis and response.

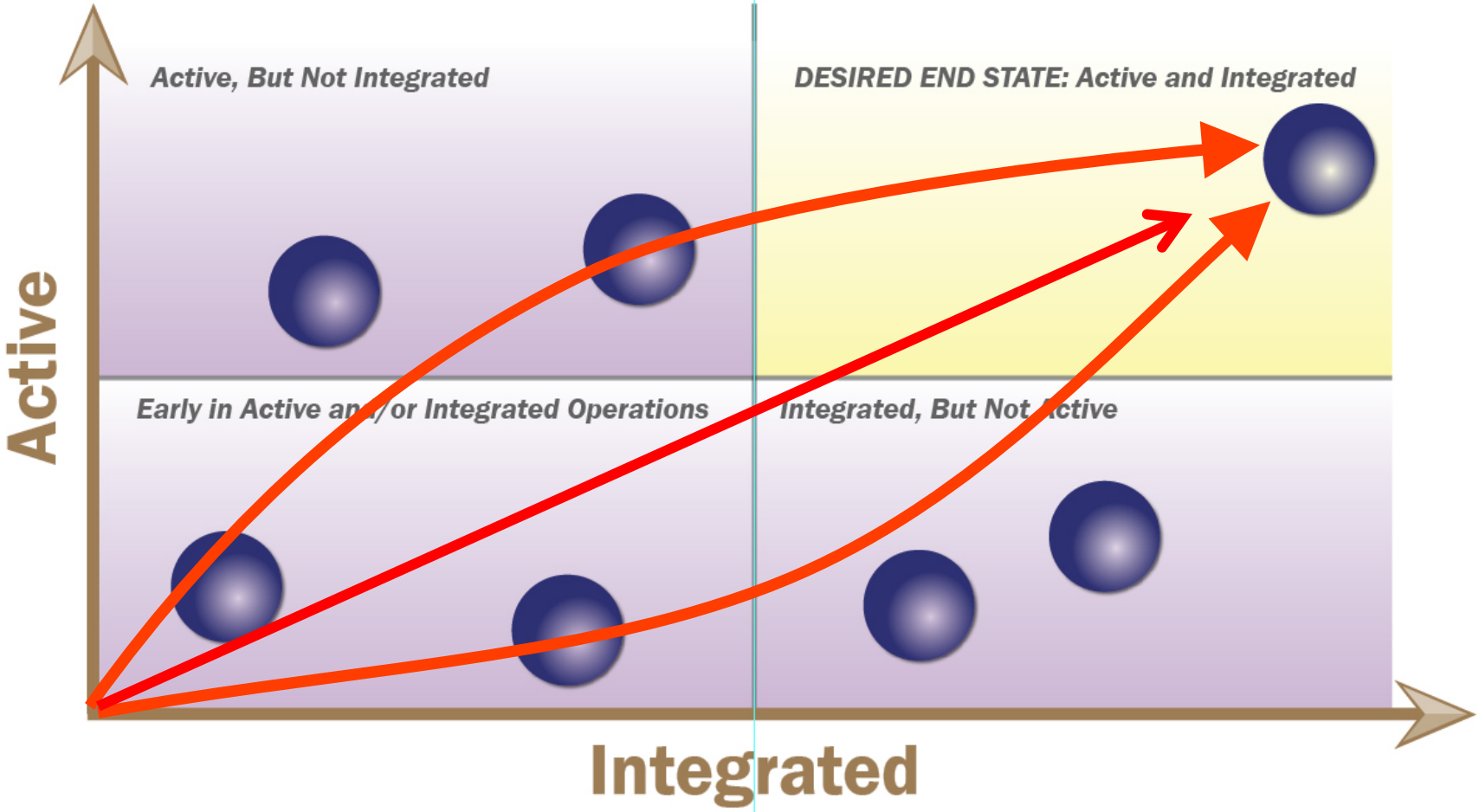
# ICM – Capability Maturity Model



# "Management"

ICM requires that the notion of *managed* corridors, and the *active management* of ***ALL*** individual facilities within the corridor, be considered.

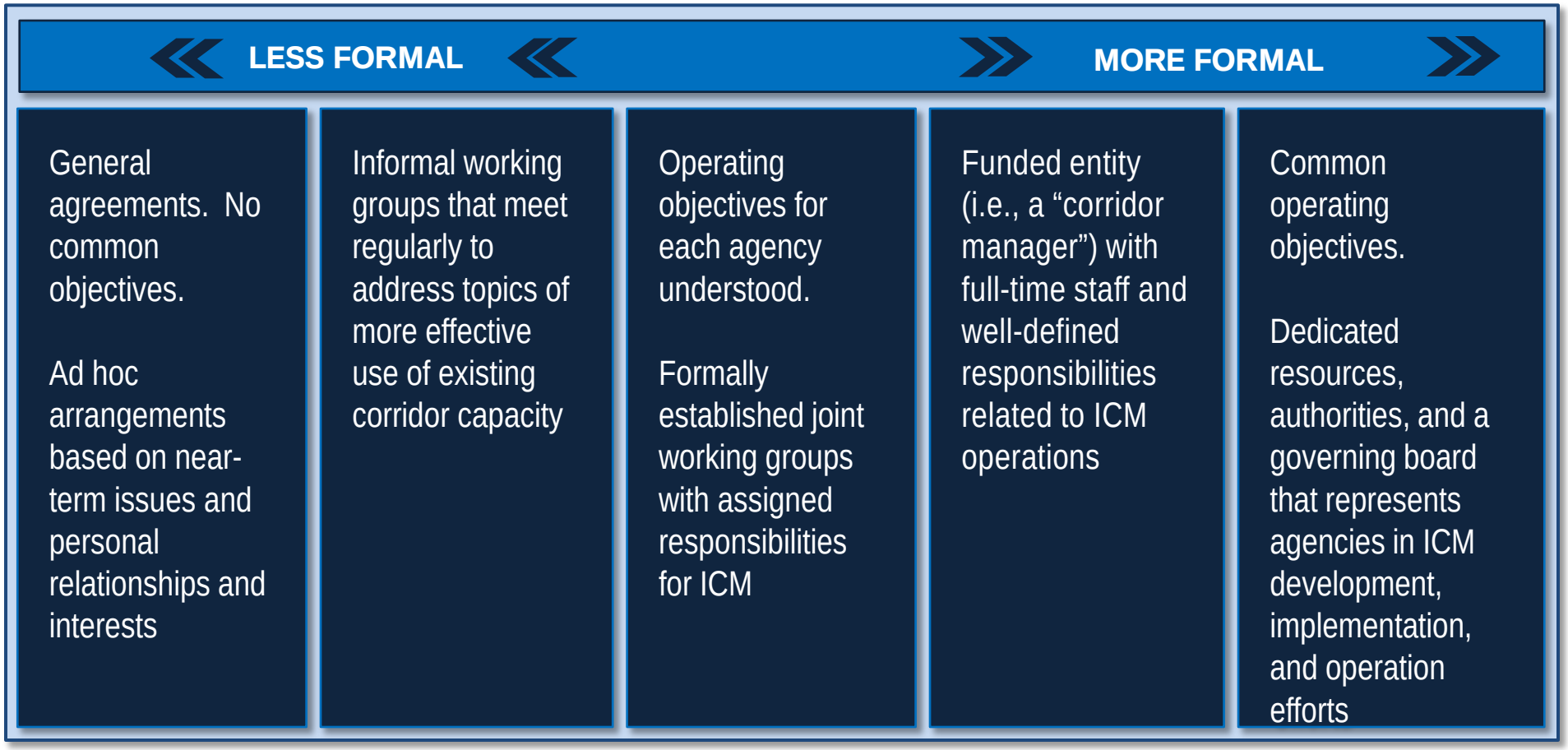
# The ACTIVE and INTEGRATED Continuum



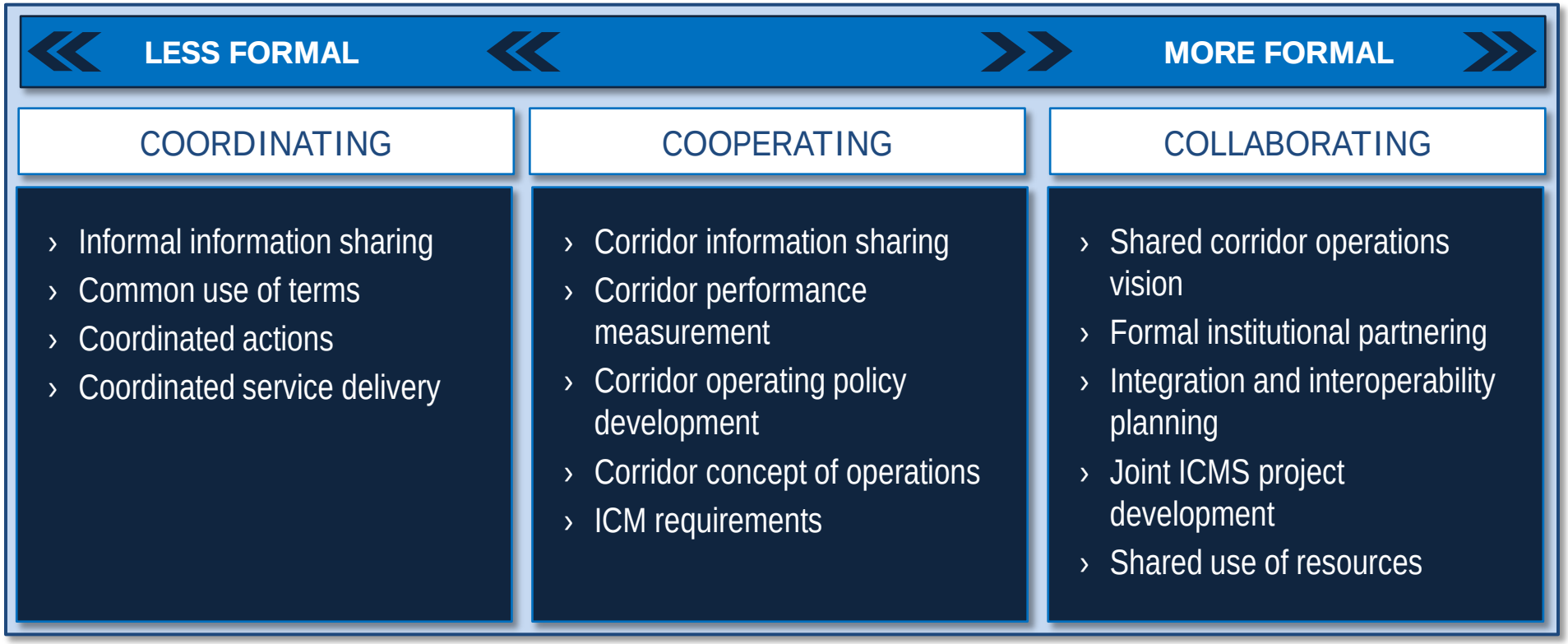
# Stakeholders


- Roadway Agencies
- Planning Organizations
- Private Sector
- Transit Agencies
- Activity Centers
- Fleet Operations
- Public Safety
- Other agency departments
- **Traveler**

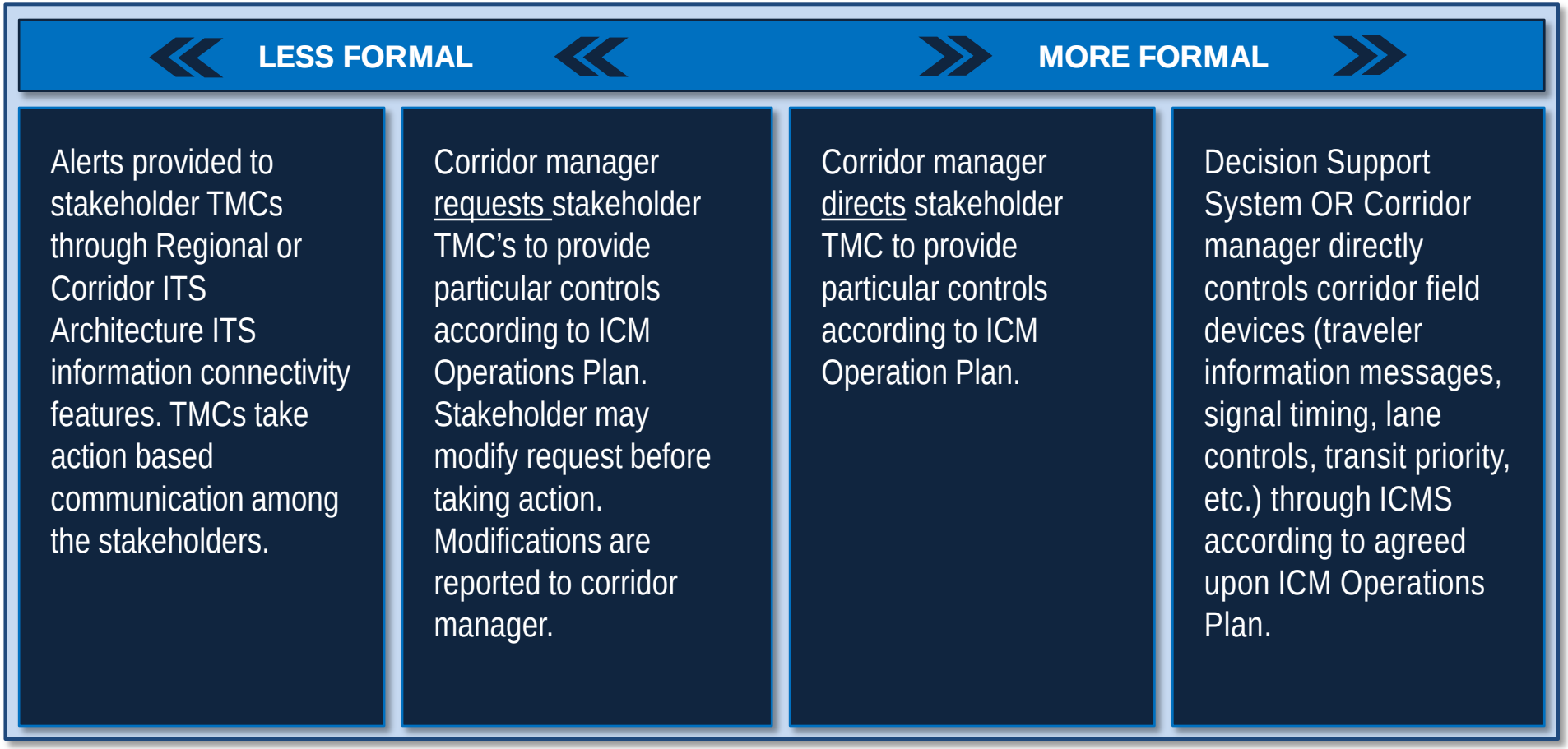
# Institutional Approaches



# Integration Processes



# ICM Technical Protocols



# ICM Operational Approaches

LESS INTEGRATION ⟵ ⟵ ⟶ ⟶ MORE INTEGRATION

| Information Sharing/Distribution | Operational Efficiency of Network Junctions | Accommodate/ Promote Route & Modal Shifts | Manage Capacity-Demand Relationship (short/long term) |
|---|---|---|---|
| • Information sharing (data, video)<br>• Information clearinghouse<br>• Corridor ATIS<br>• Using traveler information devices to describe conditions in other networks<br>• Shared control of CCTV | • Signal priority for transit<br>• Multi-modal electronic payment<br>• Transit hub connection protection<br>• Coordinated ramp metering/arterial signals | • Modify arterial signal timing/metering rates/transit priority to accommodate shifts<br>• Promote route/ mode shifts via en-route traveler info devices<br>• Re-route buses | • Lane use control<br>• Convert regular lanes to transit<br>• Add transit capacity (additional vehicles/ reduced headways)<br>• Open HOV lanes/shoulders<br>• Modify HOV requirements<br>• Variable speed limits<br>• Modify toll/transit/ parking pricing |

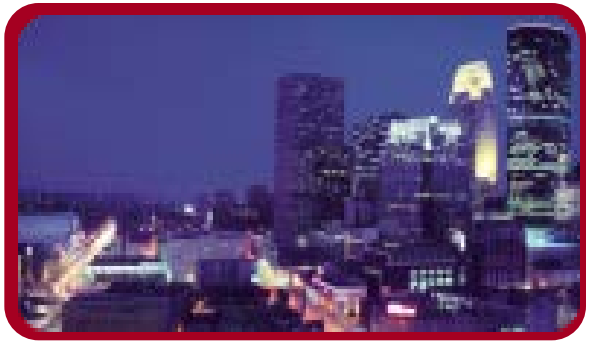
# ICM Analysis, Modeling, and Simulation Sites

**US-75,**

**Dallas, TX**

**I-394,**

**Minneapolis, MN**



**I-15,**

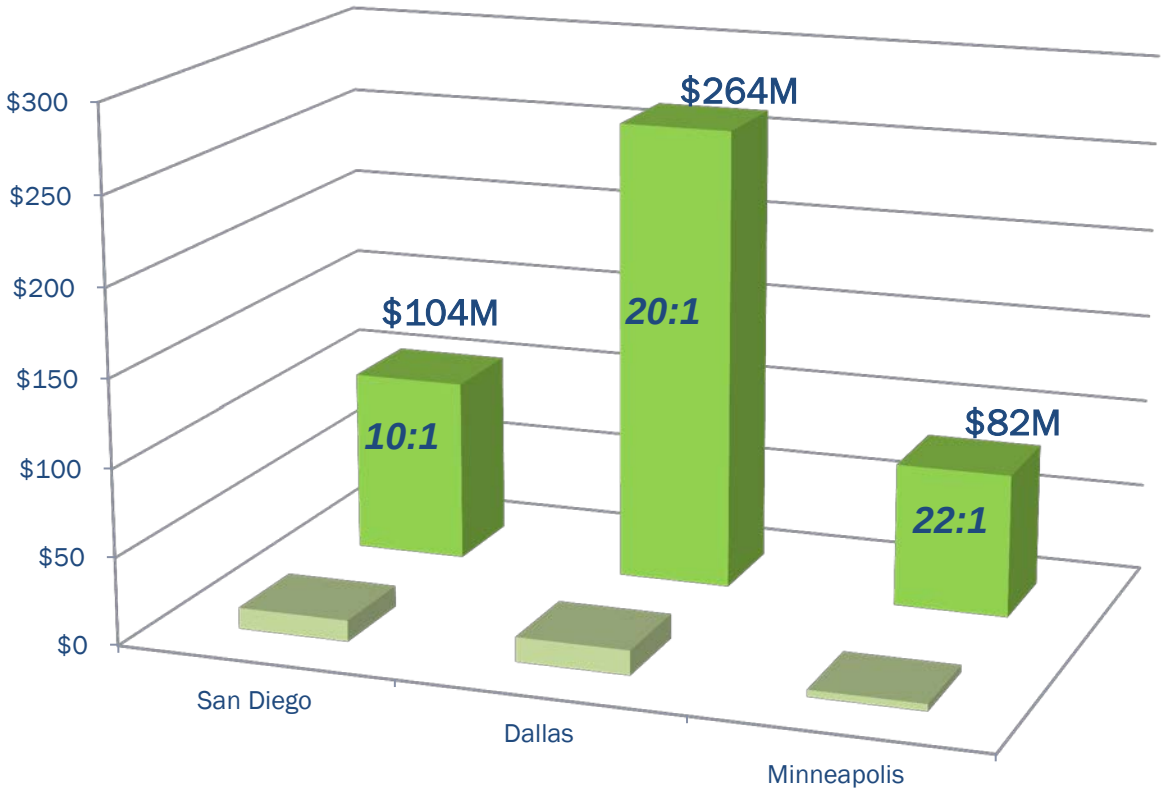
**San Diego, CA**

# Potential Benefits of ICM

## Three AMS Sites – Dallas, Minneapolis, and San Diego

| PERFORMANCE MEASURE AREAS | 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% |
| Fuel Saved Annually (in Gallons) | 323,000 | 981,000 | 17,600 |
| Tons of Mobile Emissions Saved Annually (in Tons) | 3,100 | 9,400 | 175 |

# ICM Benefits Far Outweigh Costs



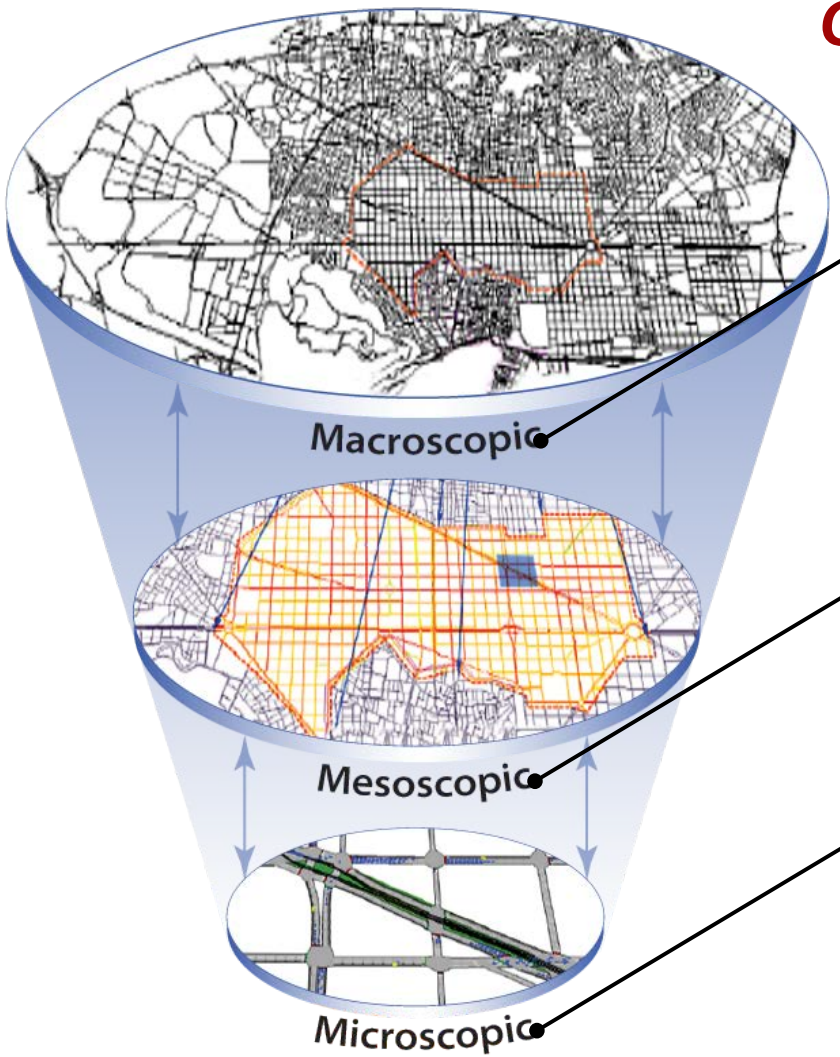

***KEY:***

10-Year Cost

10-Year Net Benefit

•***Benefit Cost Ratio (italicized)***

# *Multi-level Analysis Tools Provide Comprehensive Insight*




Regional patterns and mode shift; Transit analysis capability

Traveler information, HOT lanes, congestion pricing and regional diversion patterns

Traffic control strategies such as ramp metering and arterial traffic signal control

# ICM Demonstration Sites

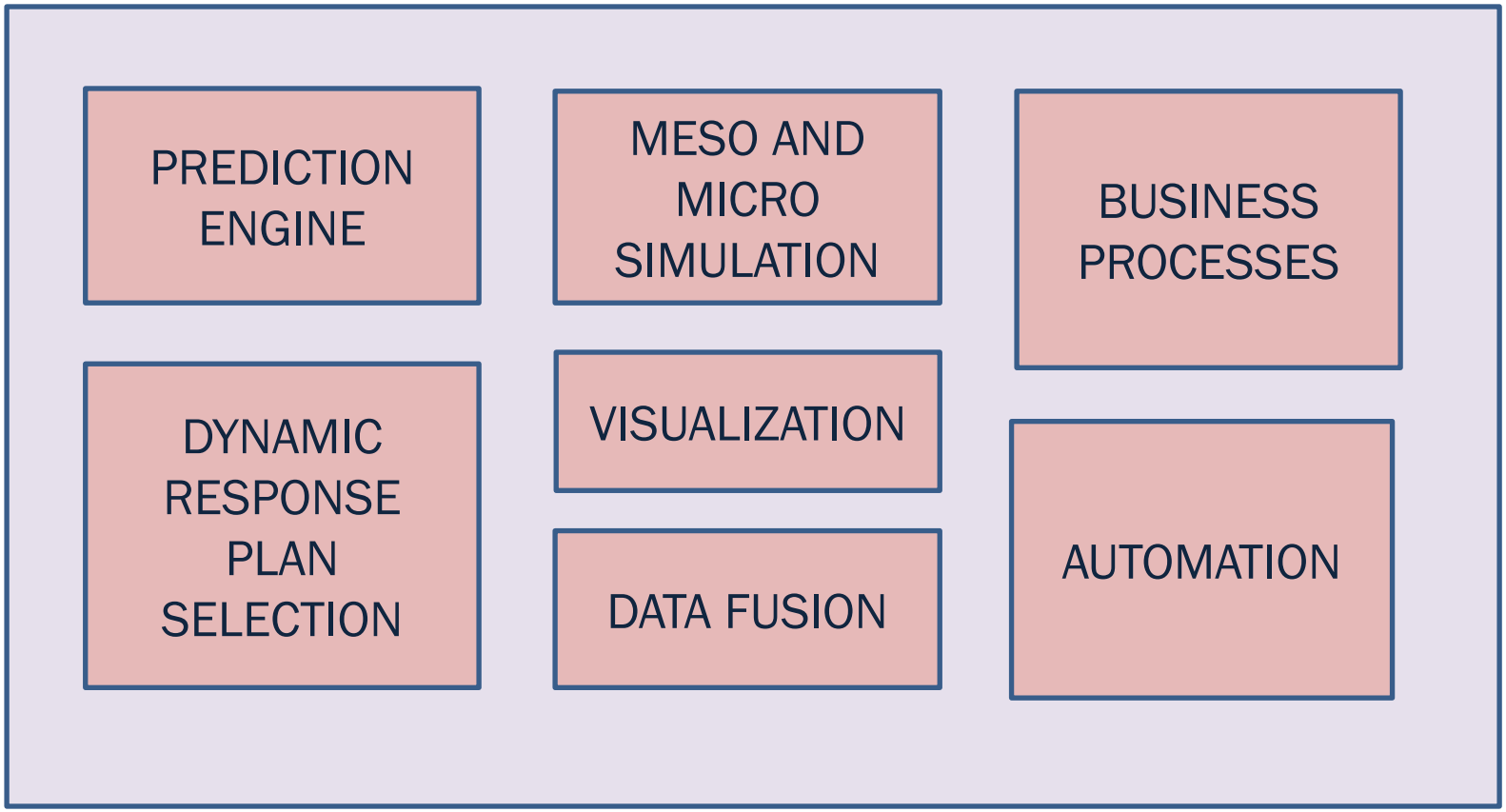
## I-15, San Diego, CA

## US-75, Dallas, TX

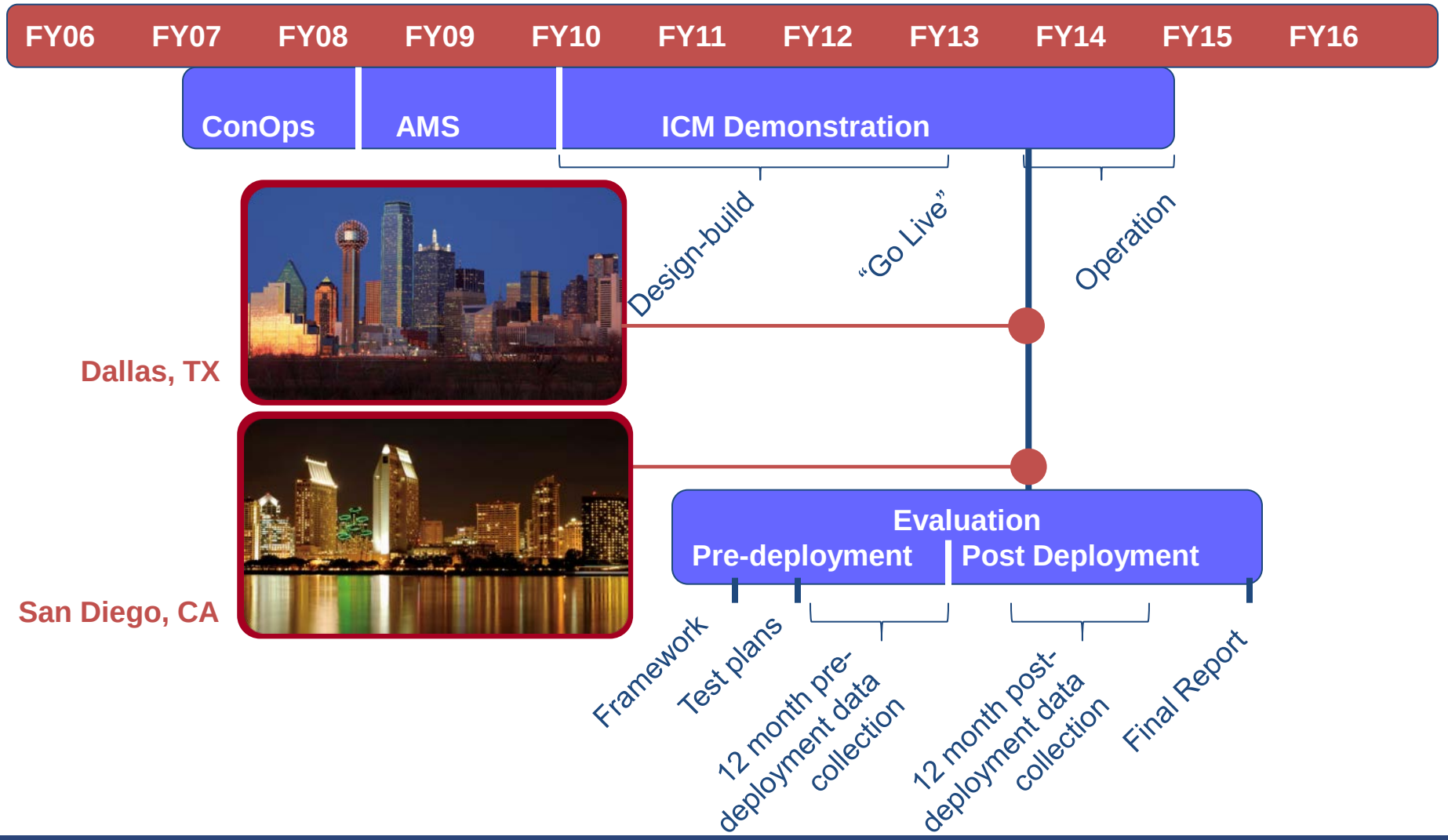
# Demonstrations Include:

- Joints operations agreements
- Transit options – LRT and BRT
- Mode, route, time shift approaches
- Improved junctions between modes and facilities
- Real-time multi-modal data integration
- Parking systems
- Responsive signal and meter operations
- Data availability to public/private
- Advanced Traveler Information approaches
- Shared and automated control
- **Decisions Support Systems**

# Real-Time Decision Support Systems



# Demonstration/Evaluation Schedule



# What's next for ICM Program?

- ICM Demonstration operations
- ICM Demonstration evaluation
- ICM Deployment Planning Grants selection
- Technology transfer and Technical support
- Follow up research
- A second webinar, February 27, from 10:00–11:00 PST. Case Study
- The third and final webinar, March 27, from 10:00-11:00 PST. Case studies of smaller scale applications of ICM concepts from around the country.

# Contact

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