



# ITS Lessons Learned

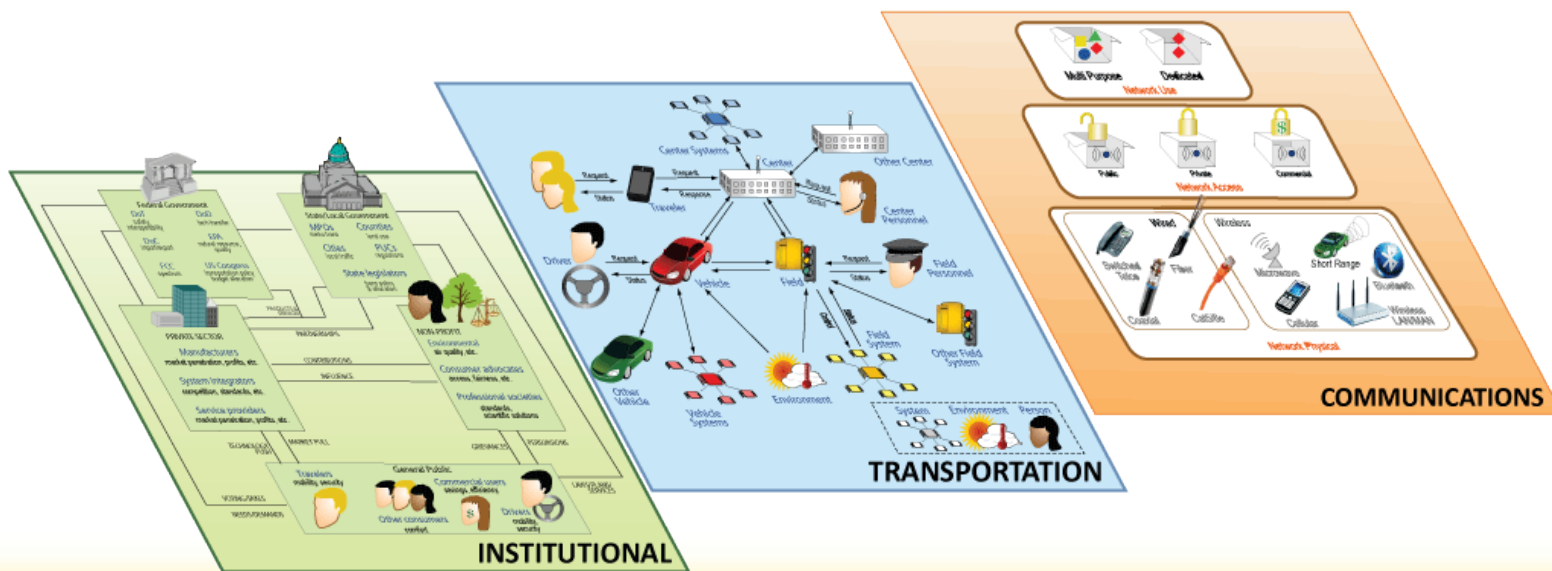
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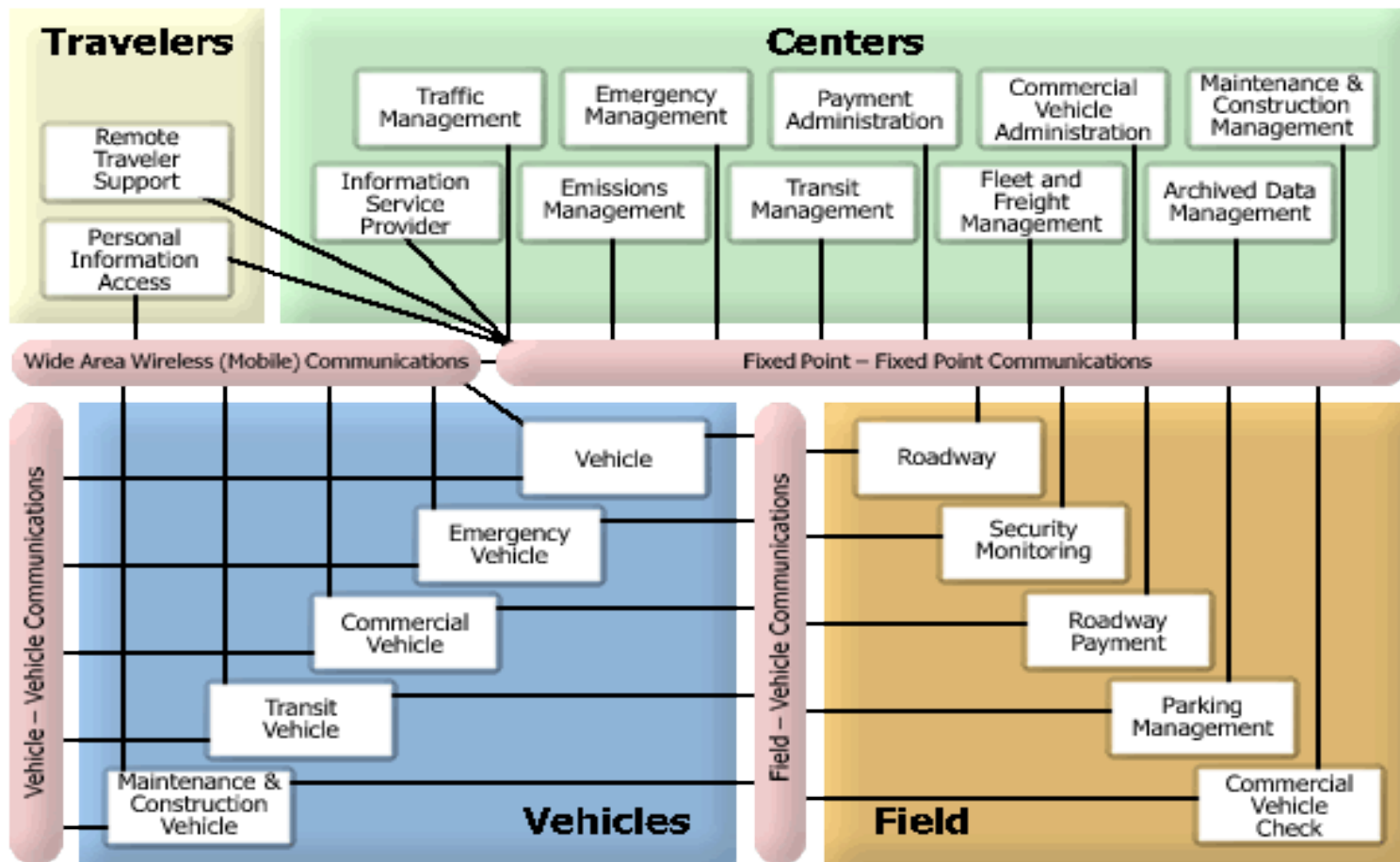


# DART ITS Planning efforts

- ITS National architecture & standards
- ITS Regional architecture & accepted standards
- Transit agency ITS architecture & accepted standards

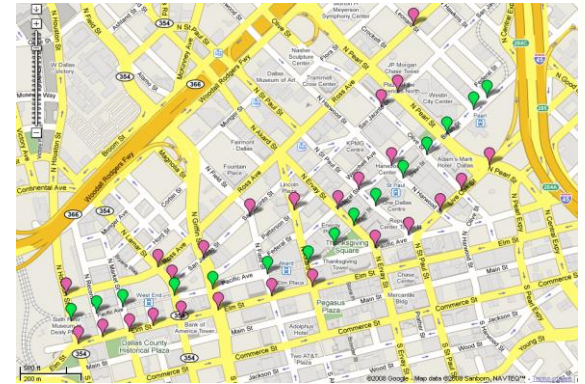


# ITS National Architecture



# DART ITS implementation efforts

- Passenger Information Systems  
PAVMB/Next train information
- Traffic Signal Priority systems  
LRT priority in Dallas Central Business District
- In-vehicle systems  
Cameras/GPS/ Infotainment systems
- HOV/Managed HOV systems  
Vehicle detection system/CCTV/DMS/Gantry locations
- Wireless and wire-line communication networks



# DART ITS implementation efforts

- **Comprehensive Fare Payment System**

- Mobile app for fare payment
- Contactless card, account based

- **Passenger Counting Systems**

- 150 on buses
- 68 on LRT
- Integrating Fare box data with GPS data to improve system analysis

- **Parking Management Systems**



# DART Control Centers

- DART Control Centers

  - LRT center

  - Fixed route center

  - HOV/Managed HOV center

  - Customer information center

  - Police center

- TRE center

- Regional partners centers



# Integrated Corridor Management (ICM)

- Dallas ICM initiative

  - 511 system

  - Detection system

  - Decision Support System

  - Route shifting system

- ICM Goal

  - Share network conditions

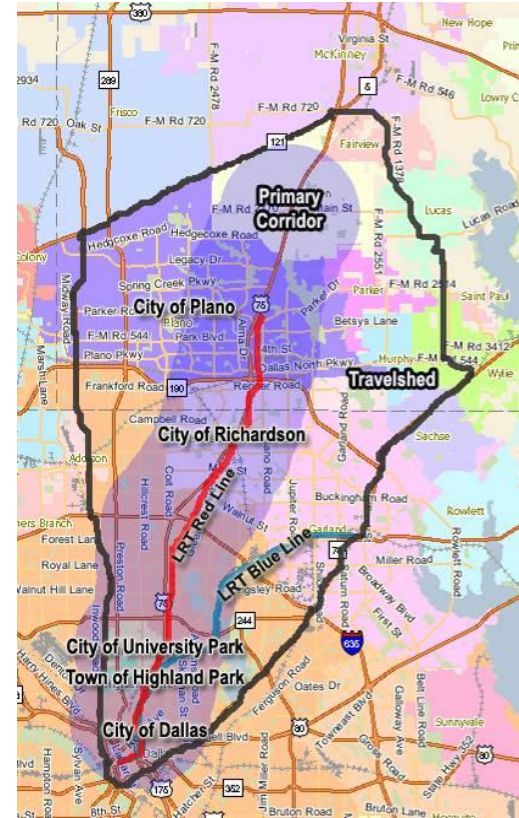
  - Manage traffic

  - Implement response plan requests

  - Inform public of network conditions

  - Determine available capacity of transit network

  - Monitor LRT capacity and recommend mode shift



# In-Transit Customer Information

## Information Types

**Bus/Train Location**  
**Service Interruptions**  
**Detours**  
**Emergency Notifications**

**Events Driven Services**  
**Public Notices**  
**Service Change Notices**

Rules of Riding  
Schedules

**Advertising**  
**Multimedia**  
**3<sup>rd</sup> party content**

## Delivery Targets

Customer Service Agents  
Transit Centers displays  
Rail Stations displays and announcement  
Vehicle based displays  
Field Operators, Agents  
WEB sites  
Cell Phones  
Text Messaging  
E-mail  
RSS, Twitter  
Face Book

Geographic targets  
Subscribers  
Route-specific

### PUBLISHER

Authenticate  
Reformat  
Target  
Push Out

The “publisher” is a new function, comprising people, processes and technology





# Mobile Surveillance Advancement

- Introduction of IP camera
  - Better picture resolutions (from .3 Mega Pixel (MP) to ranges from 2 – 15 MP)
  - Increased field of view
  - Each camera is independent of DVR for viewing and configuring
  - More camera analytics potential
  - Dual stream capabilities
  - Web server (access) over network



# Mobile Surveillance Advancement

- 4G Modem and network solution
  - Makes vehicle node on network
  - Addition of switch hardware adds to overall devices that can send/receive data
  - Modem can provide Wi-Fi for customers
  - Allows cameras to be viewed remotely regardless of vehicle location.

# What have we learned

- ITS can solve Transportation problems and potentially increase transit ridership
- Consolidation of ITS in an organization
- Compliance with Federal requirements
- ITS architecture & standards our best friends
- Prepare for next ITS implementation
- Funding challenges will continue



# What have we learned

Improved system efficiency

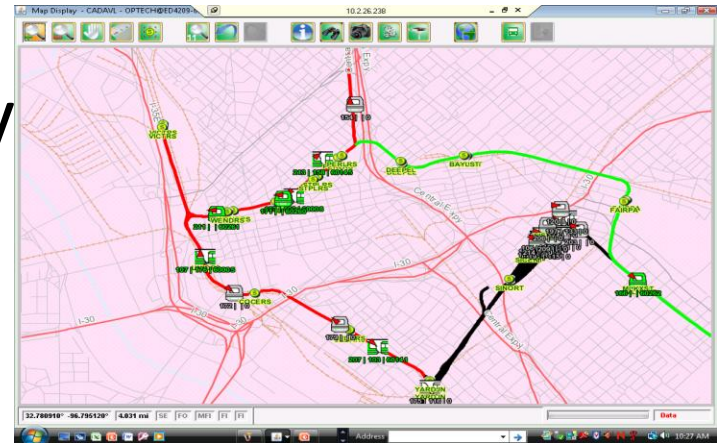
Enhanced mobility

Improved safety

Prolonged life of existing investment

Improves communication exchange between agencies

We can work side by side with other agencies that have opposing needs





End

