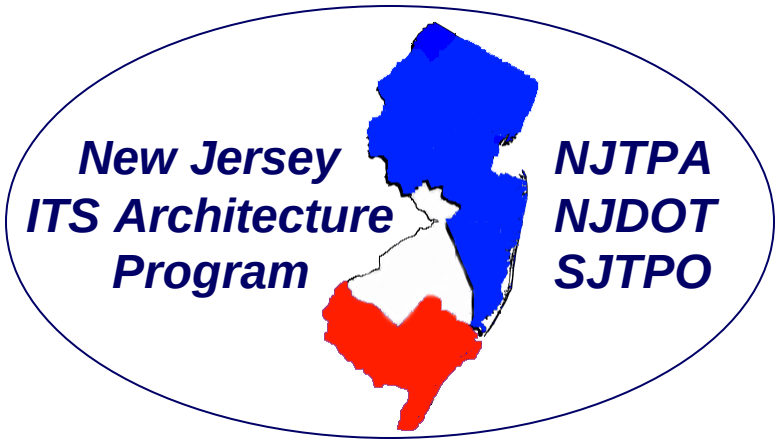
New Jersey ITS Architectures and Deployment Plans

Module 4 - National ITS Architecture Overview



April 14 – Newark (NJTPA)
April 15 – Vineland (SJTPO)
April 23 – Trenton (NJDOT)

ConSysTec Corp

ITERIS

TRANSCORE

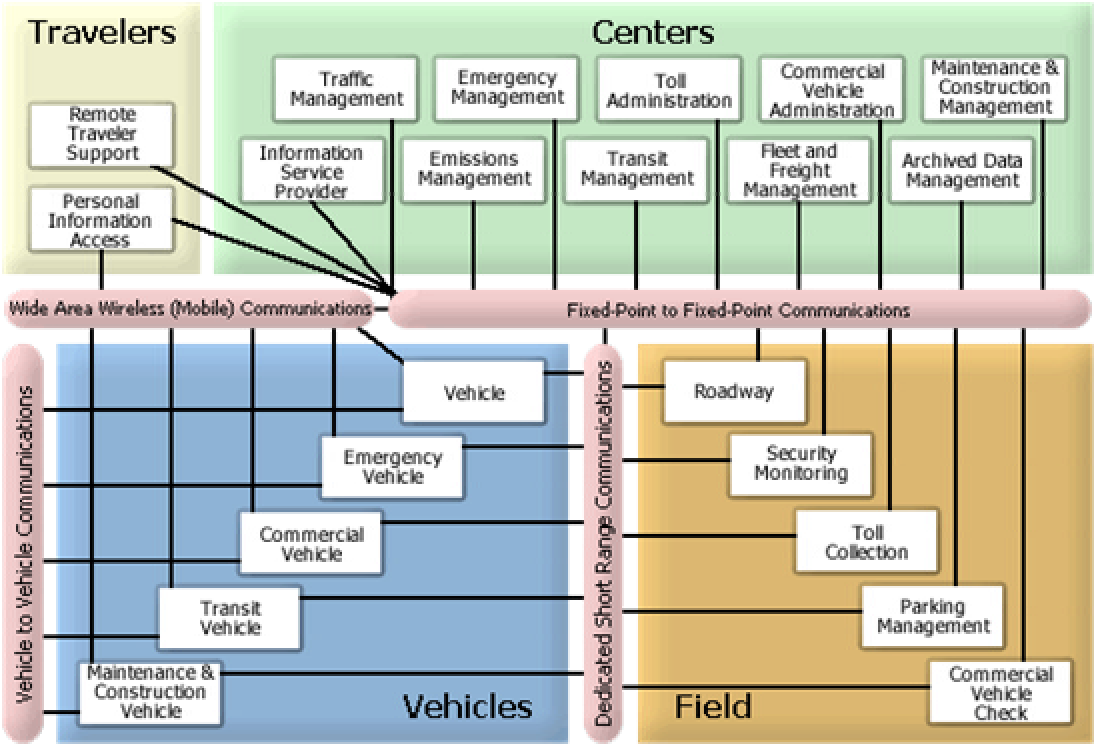
Eng-Wong, Taub & Associates
Traffic and Transportation Consultants

Module Topics

- National ITS Architecture
- How the National ITS Architecture will be used to create New Jersey ITS architectures

National ITS Architecture

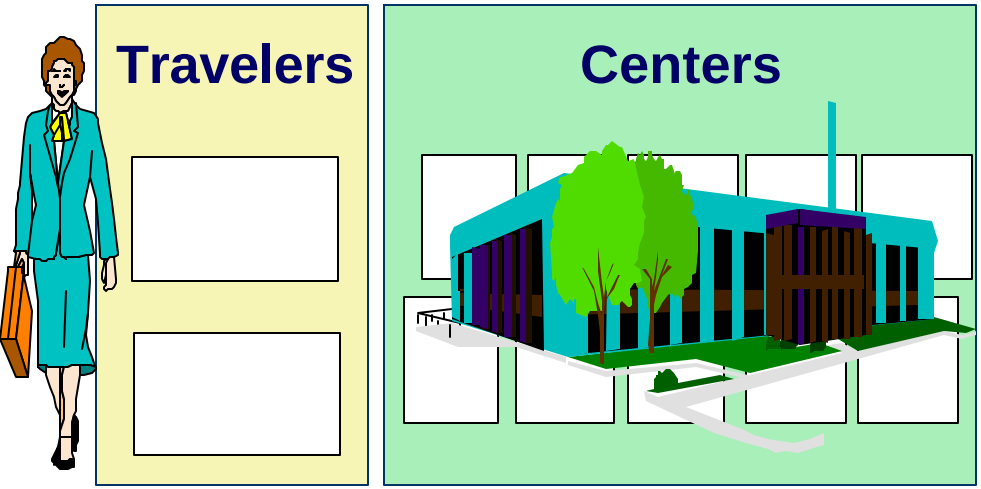
- Framework for deploying ITS
- Template for creating regional ITS architectures



Physical Architecture Entities

- Subsystems & Terminators
- Interconnects & Architecture Flows
- Market Packages

Subsystems



- Identify major systems
- Identify major interfaces
- Define key standardization points
- Not brick and mortar

Physical Architecture defines 22 Subsystems

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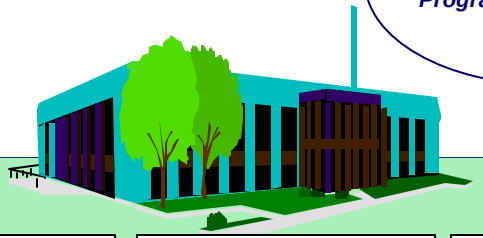


Travelers

- Remote Traveler Support
- Personal Information Access

Centers

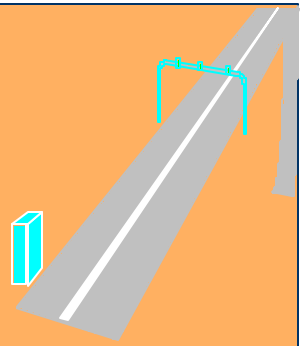
- Traffic Management
- Emergency Management
- Toll Administration
- Commercial Vehicle Administration
- Maintenance & Construction Management
- Information Service Provider
- Emissions Management
- Transit Management
- Fleet and Freight Management
- Archived Data Management

Vehicles

- Vehicle
- Emergency Vehicle
- Transit Vehicle
- Commercial Vehicle
- Maintenance & Construction Vehicle

Field

- Roadway
- Security Monitoring
- Toll Collection
- Parking Management
- Commercial Vehicle Check



Center Subsystems

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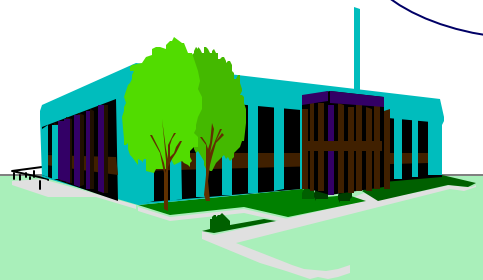
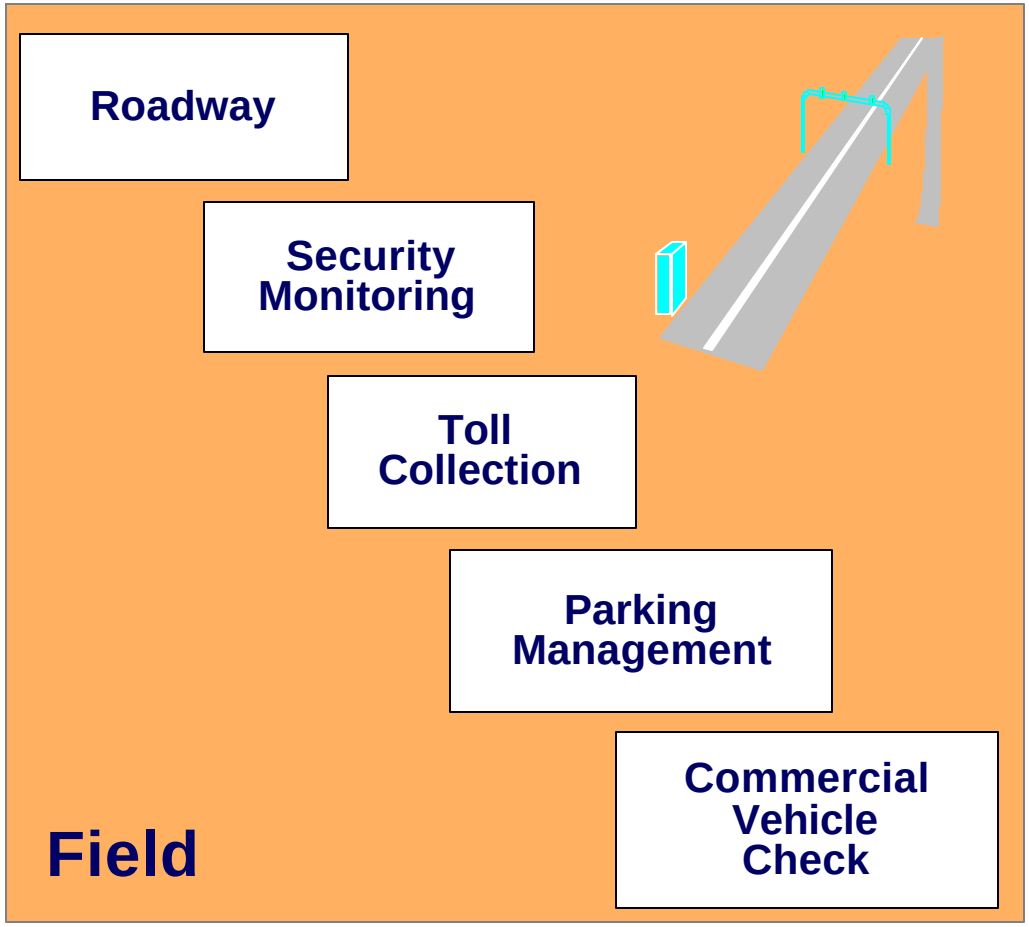


Centers

Traffic Management	Emergency Management	Toll Administration	Commercial Vehicle Administration	Maintenance & Construction Management
Information Service Provider	Emissions Management	Transit Management	Fleet and Freight Management	Archived Data Management

- Perform management and administration functions
- Coordinate with other center subsystems

Field Subsystems



- ITS infrastructure
- On or along the transportation network
- Surveillance
- Control plans
- Supply information

Vehicle Subsystems

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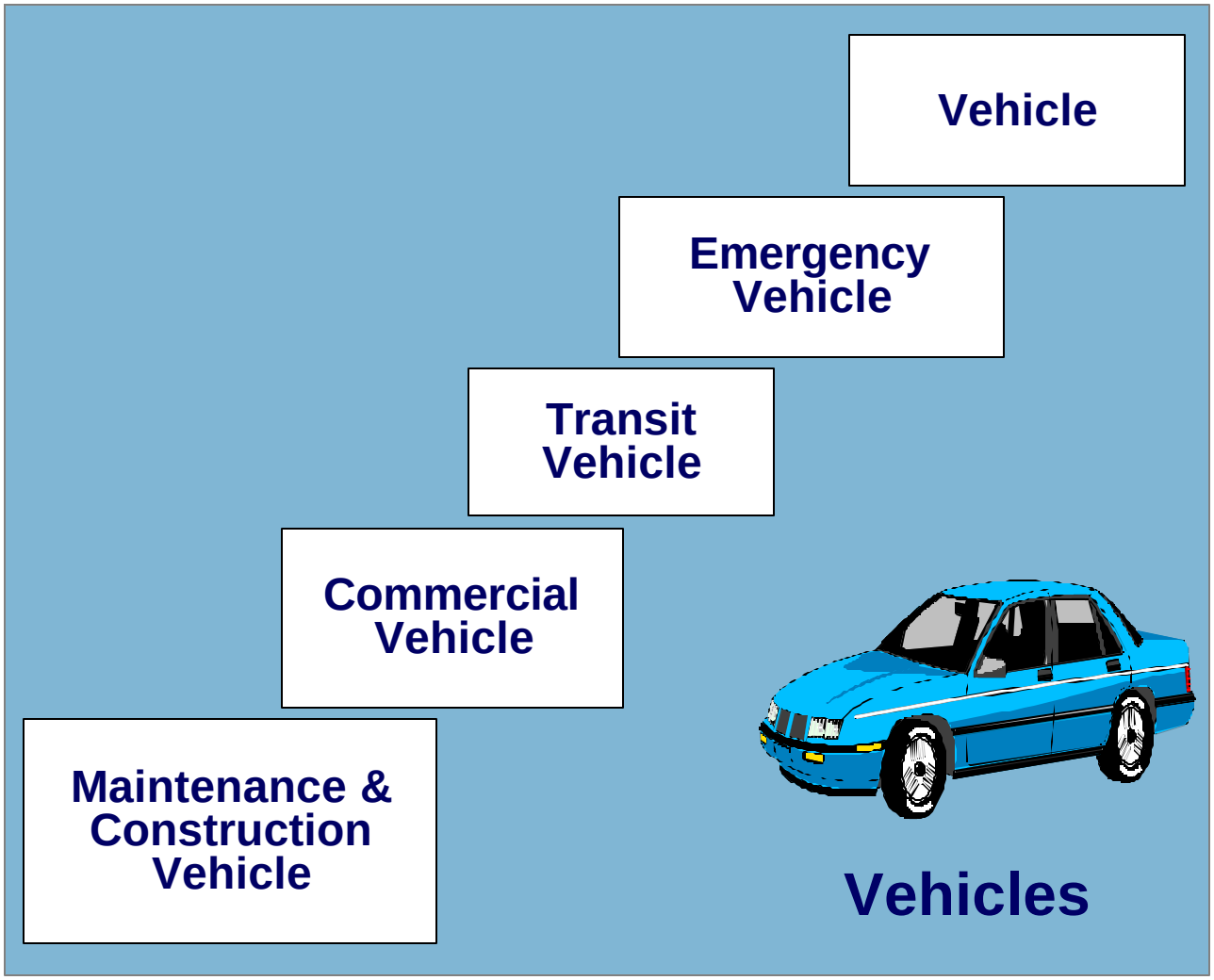

Traveler Subsystems

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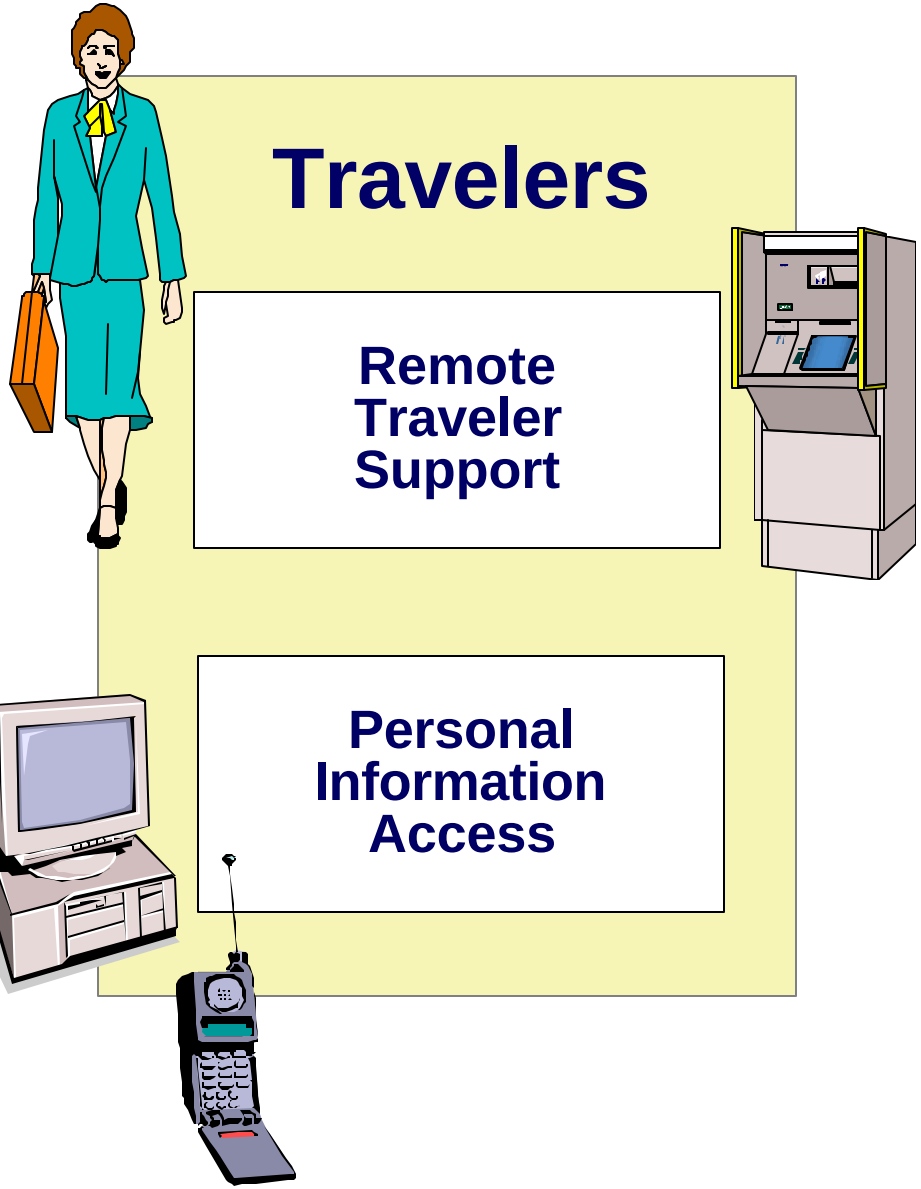

- Equipment To Access ITS Services
- PIAS represents “Personal” Devices
- RTS represents “Public” Devices

Subsystems can be Aggregated and Replicated

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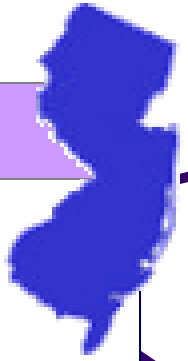
Big City TMC

Information Service Provider
Traffic Management



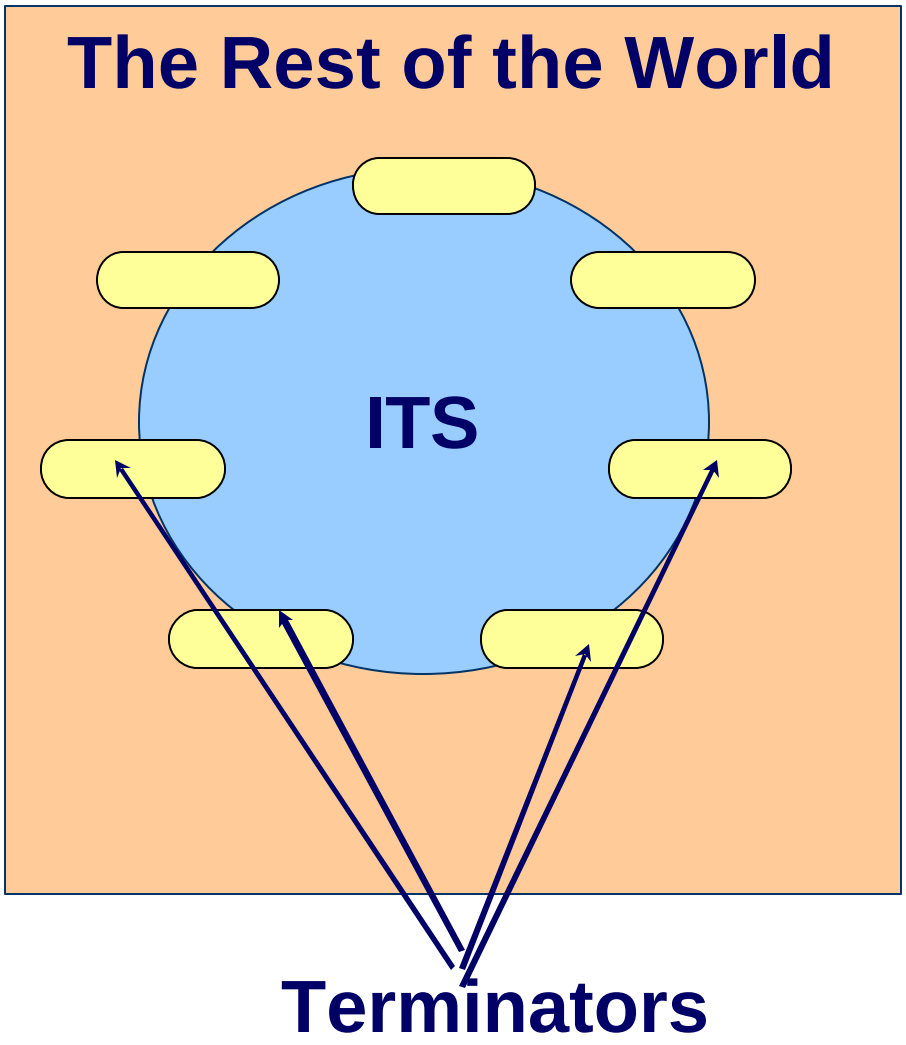
State TMC

Information Service Provider
Traffic Management
Emergency Management

Small Town TMC

Traffic Management

Terminators Establish the Architecture Boundary



Four types of Terminators

- Environment
- Humans
- Systems
- Other Systems

Subsystems & Communications

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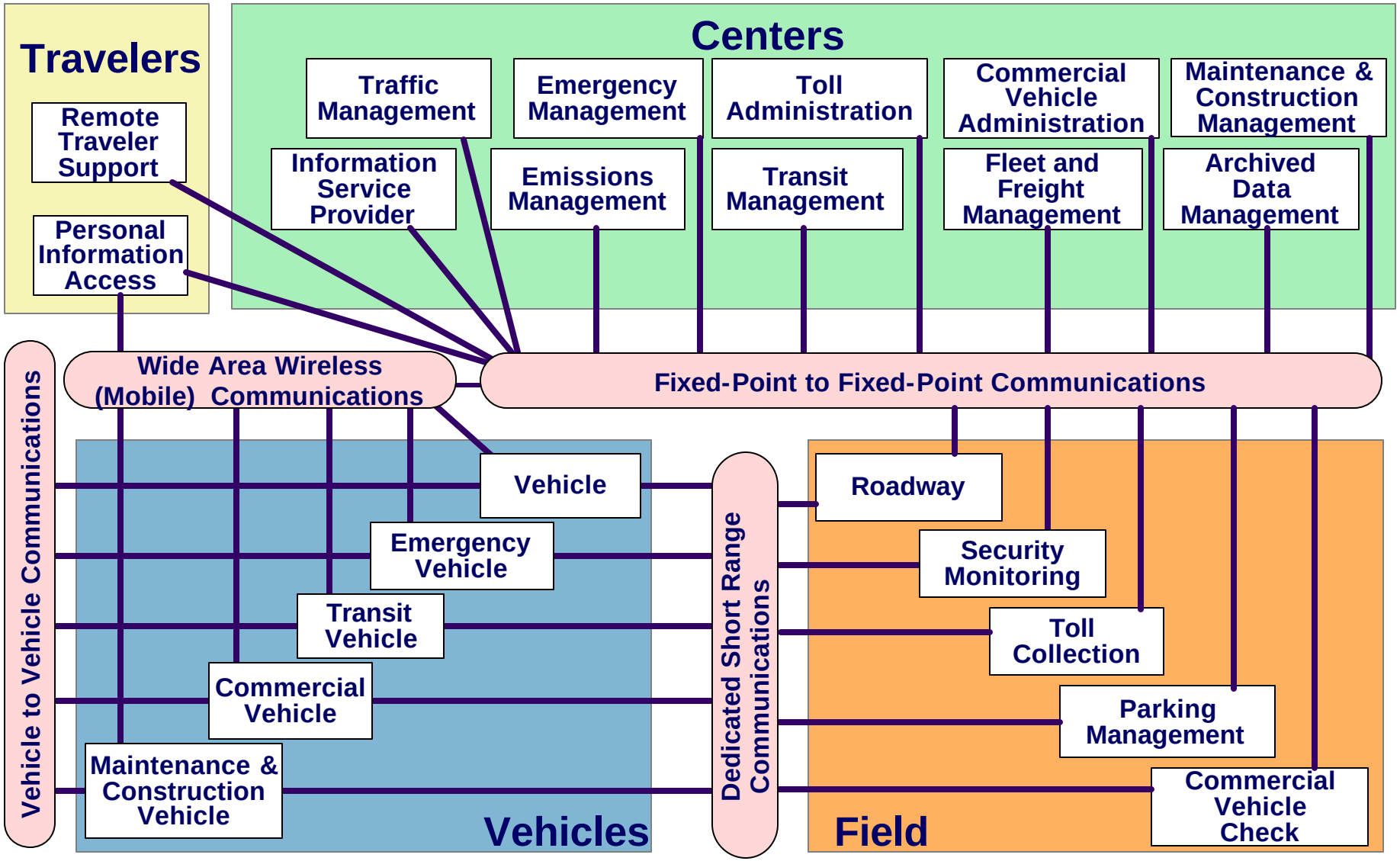

Interconnects

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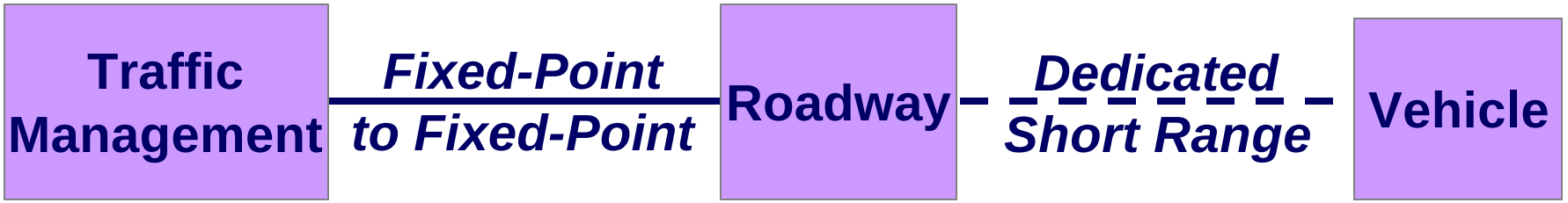
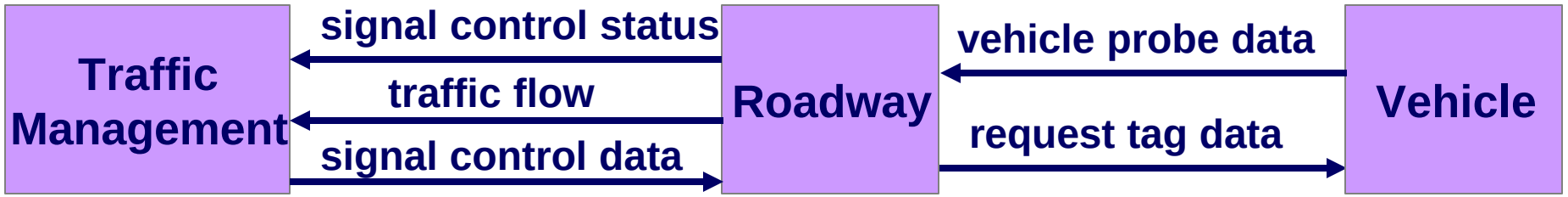
- Identify and classify connectivity between elements
- "Communications Highways"



Architecture Flows

- Identifies what information is exchanged between ITS elements



Interconnects and Terminators

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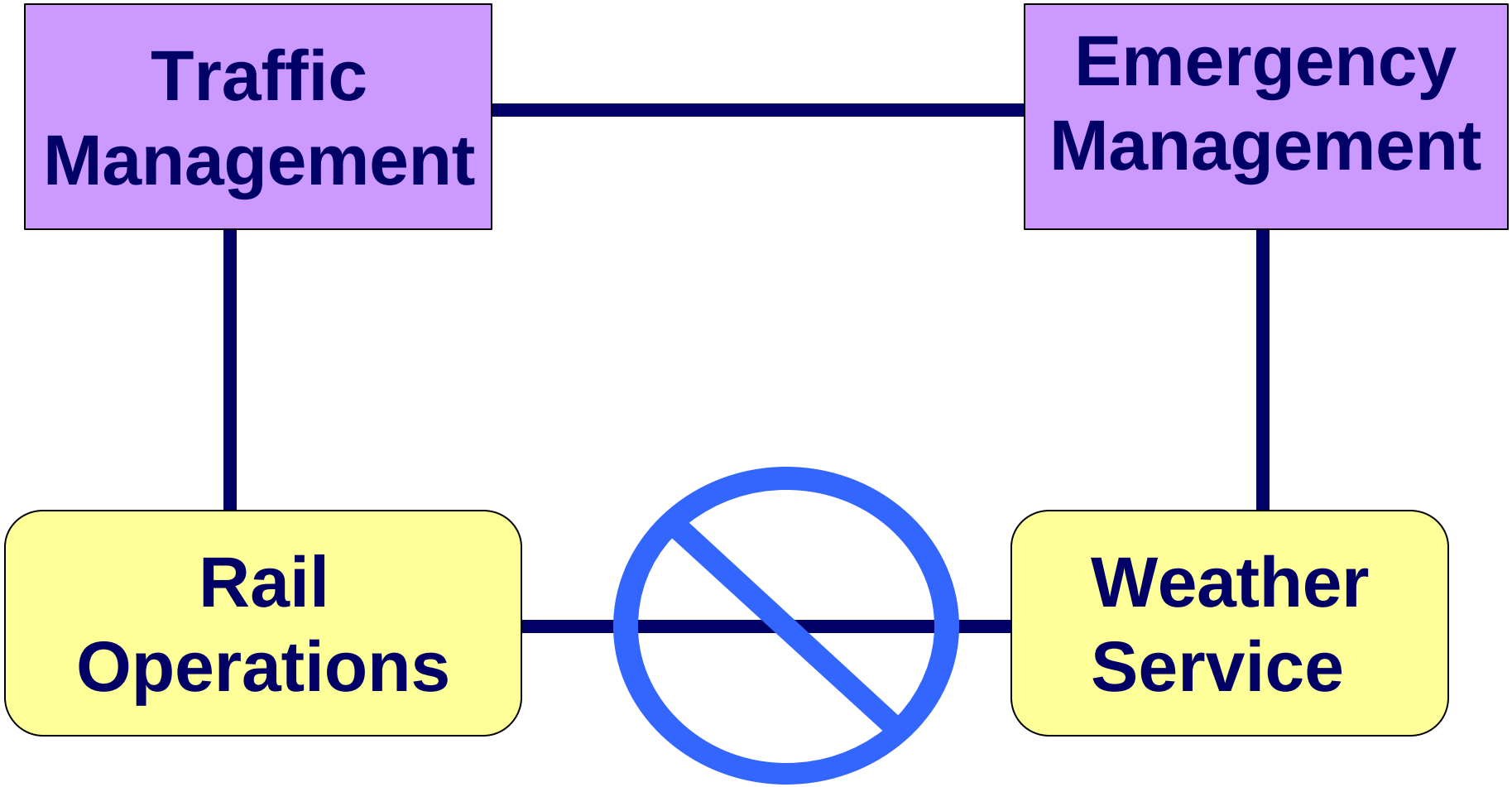

Not in Architecture

Using the National ITS Architecture

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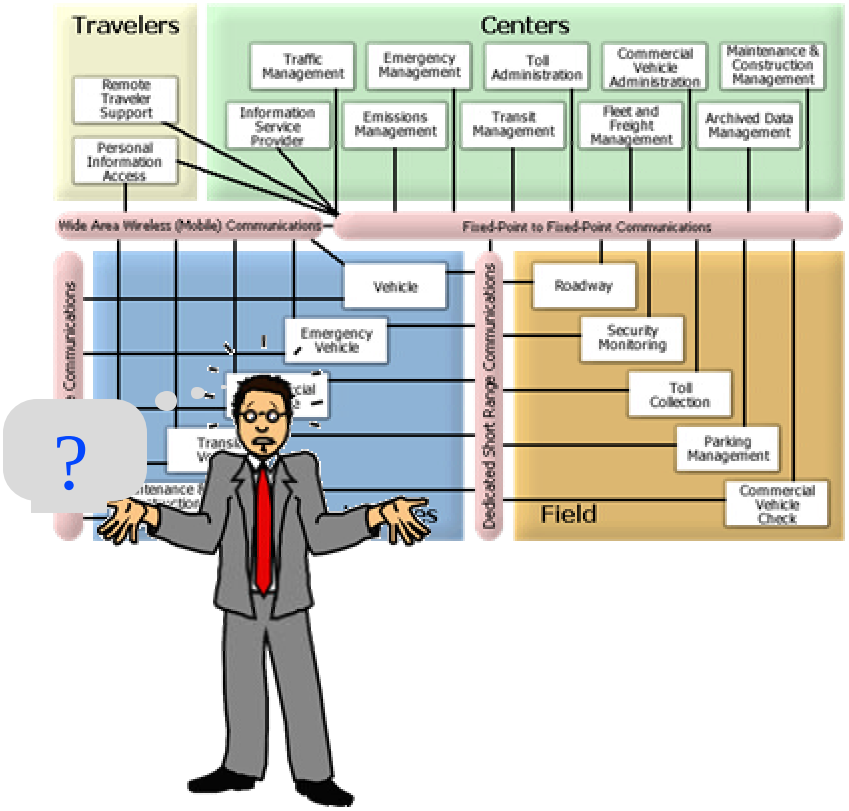
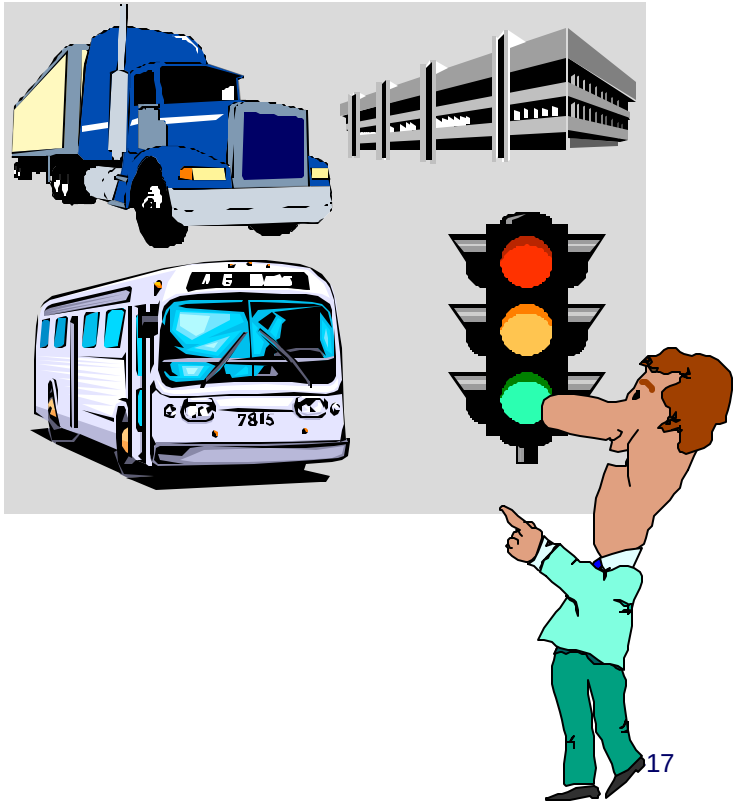
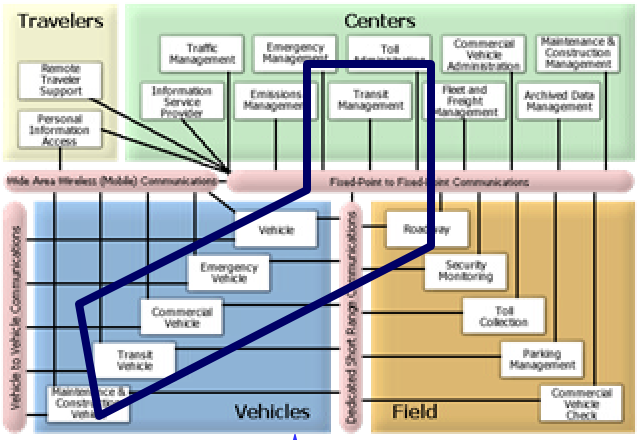
"Technical Framework"

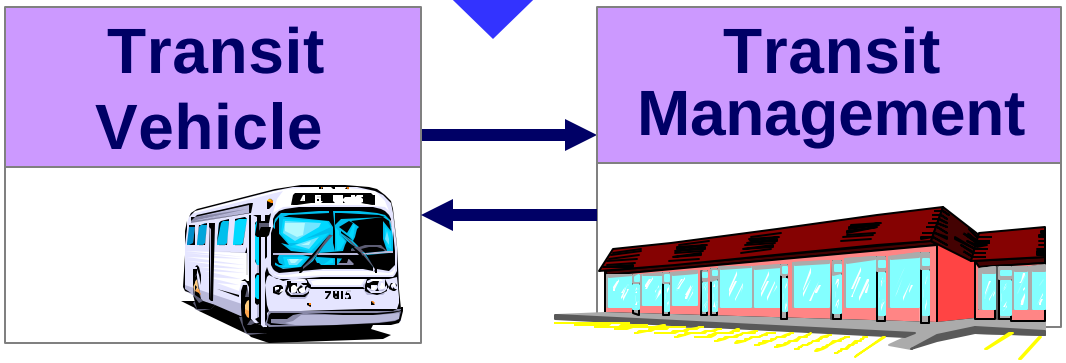


"Transportation Services"



Market Packages





- **National ITS Architecture**
  - An ITS Framework
- **Market Packages**
  - Contain pieces of the National ITS Architecture that provide a particular transportation service

Automated Transit Fare Payment

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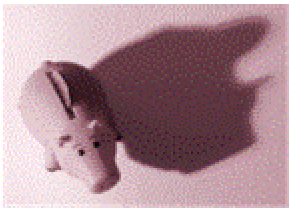
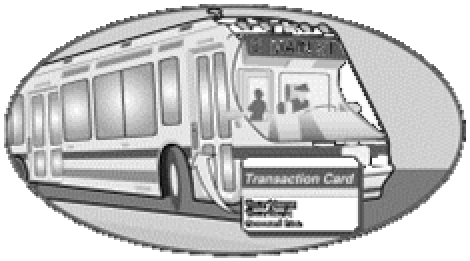
Enforcement

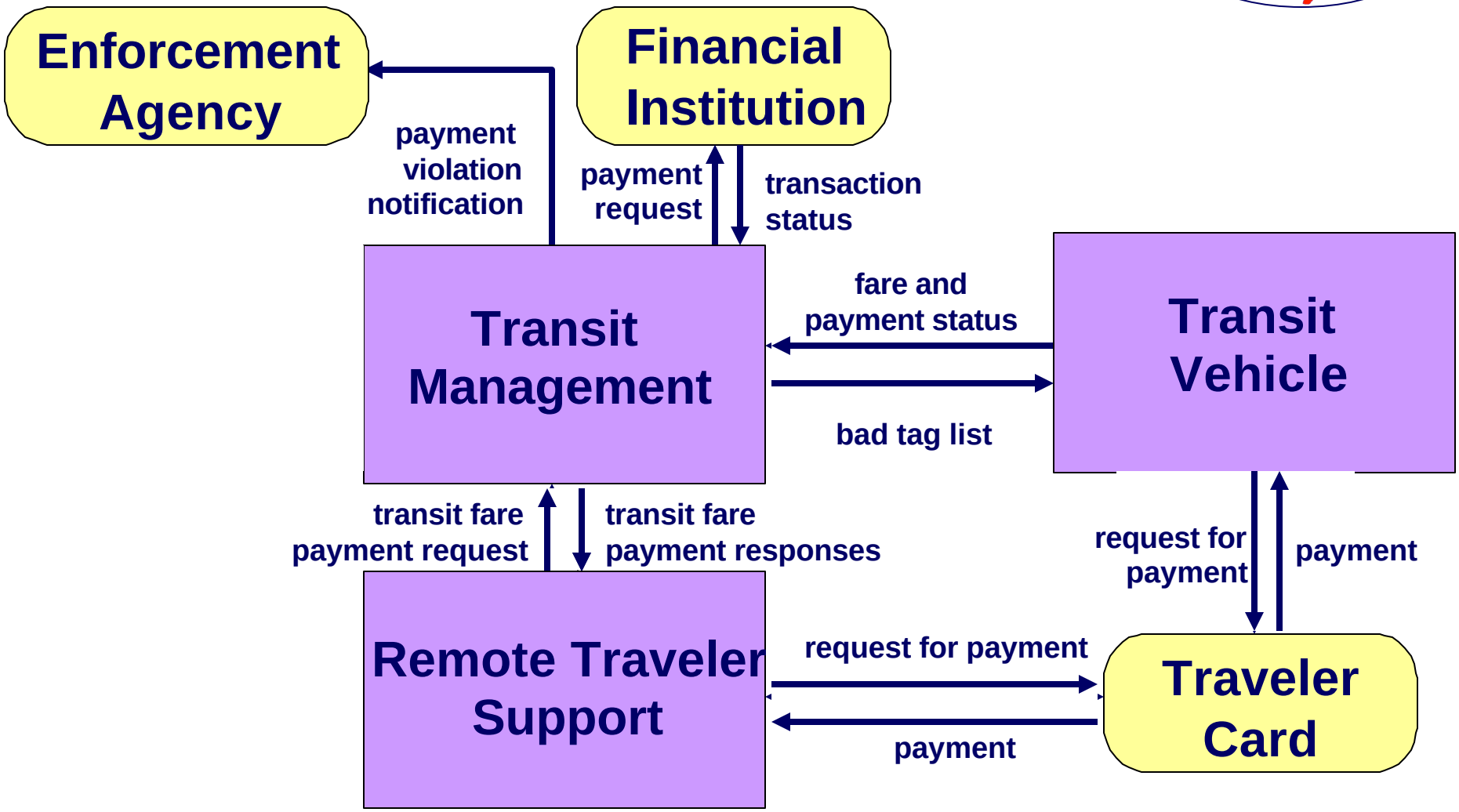


Financial Institution

Transit Management Center



Automated Fare Payment



Note: Portion of Transit Passenger and Fare Management Market Package

Market Packages

- Identify pieces of National ITS Architecture required to implement a particular transportation service
  - Subsystems and Terminators
  - Architecture Flows

Using the National ITS Architecture to create New Jersey ITS architectures

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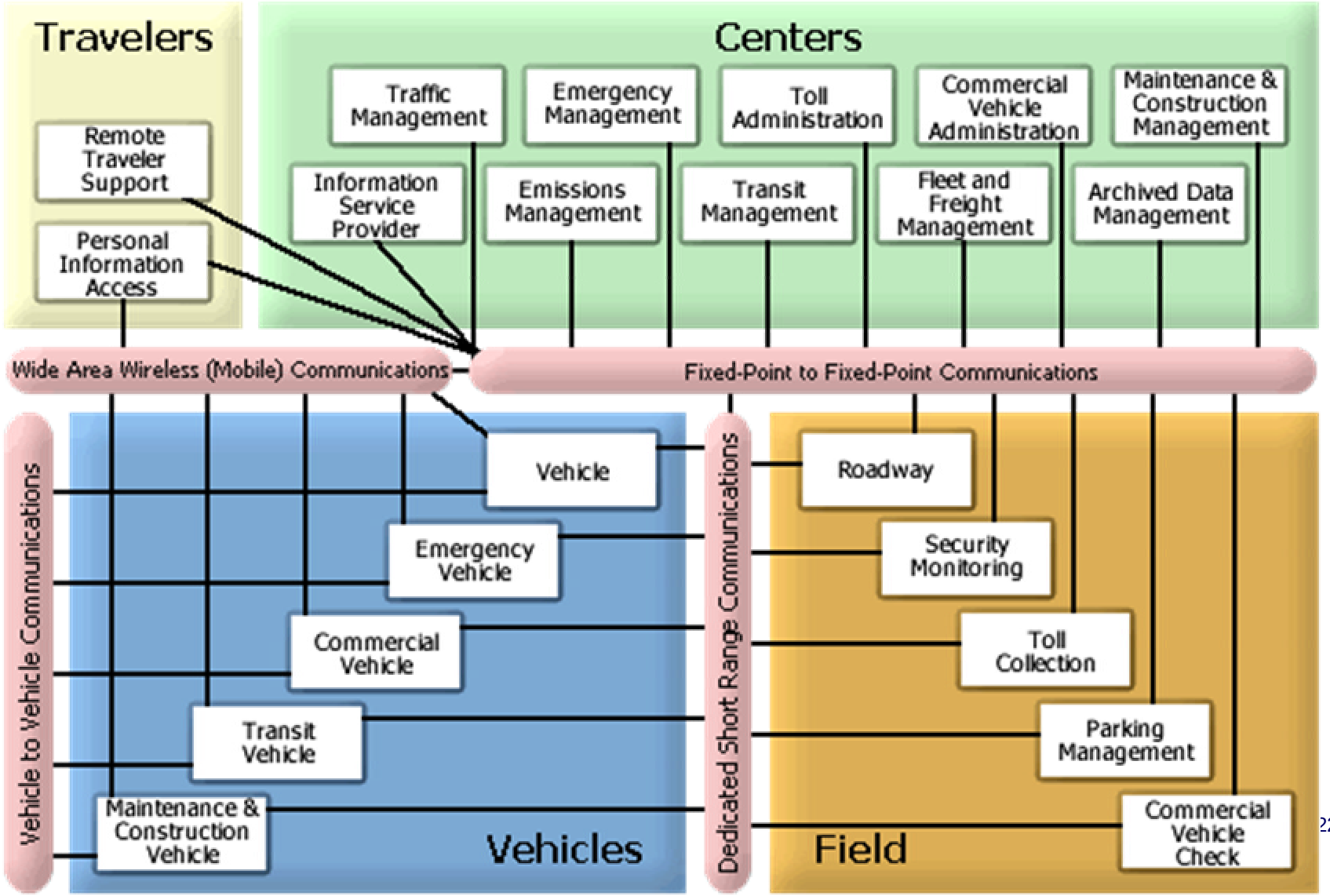

Map Inventory Elements to National Architecture Entities

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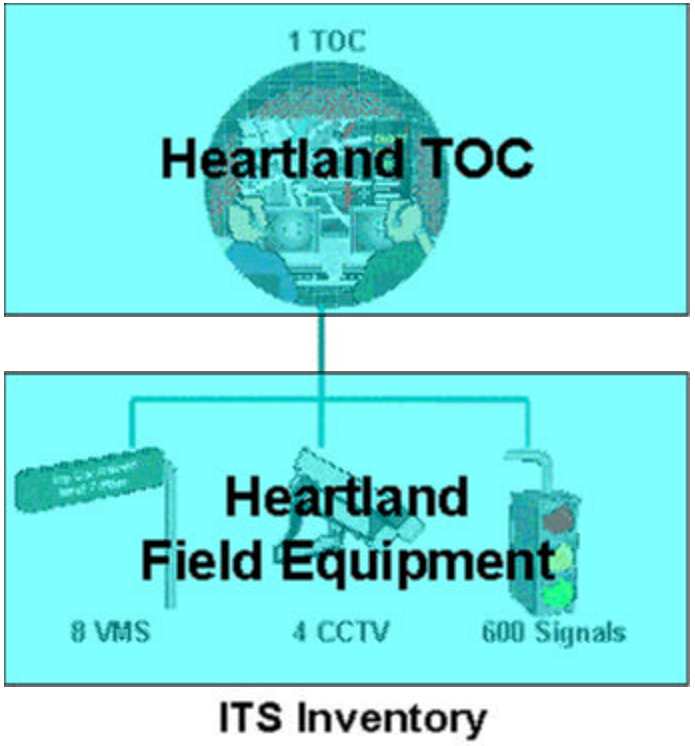

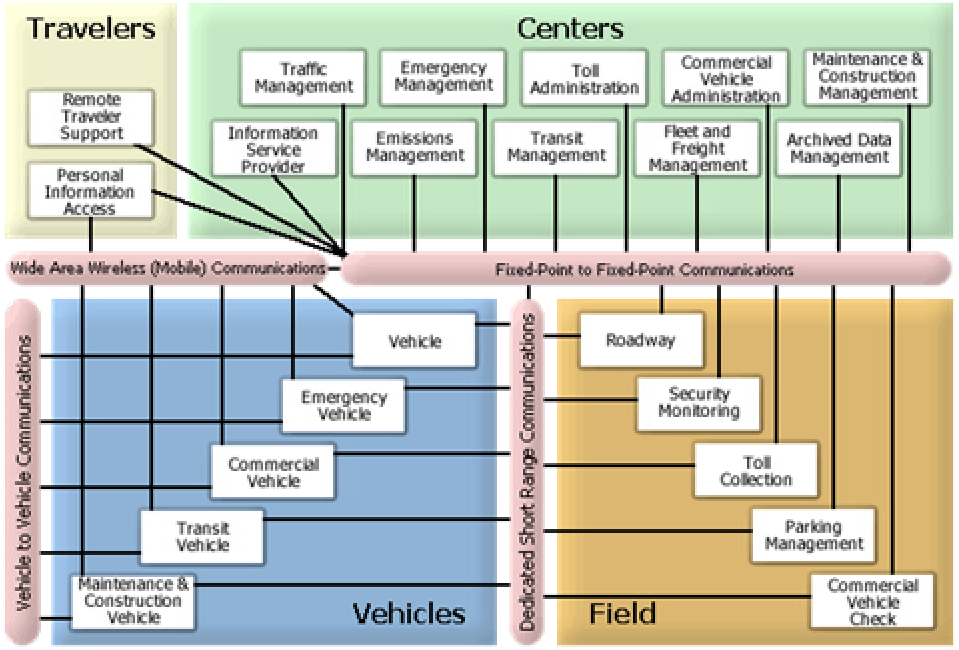

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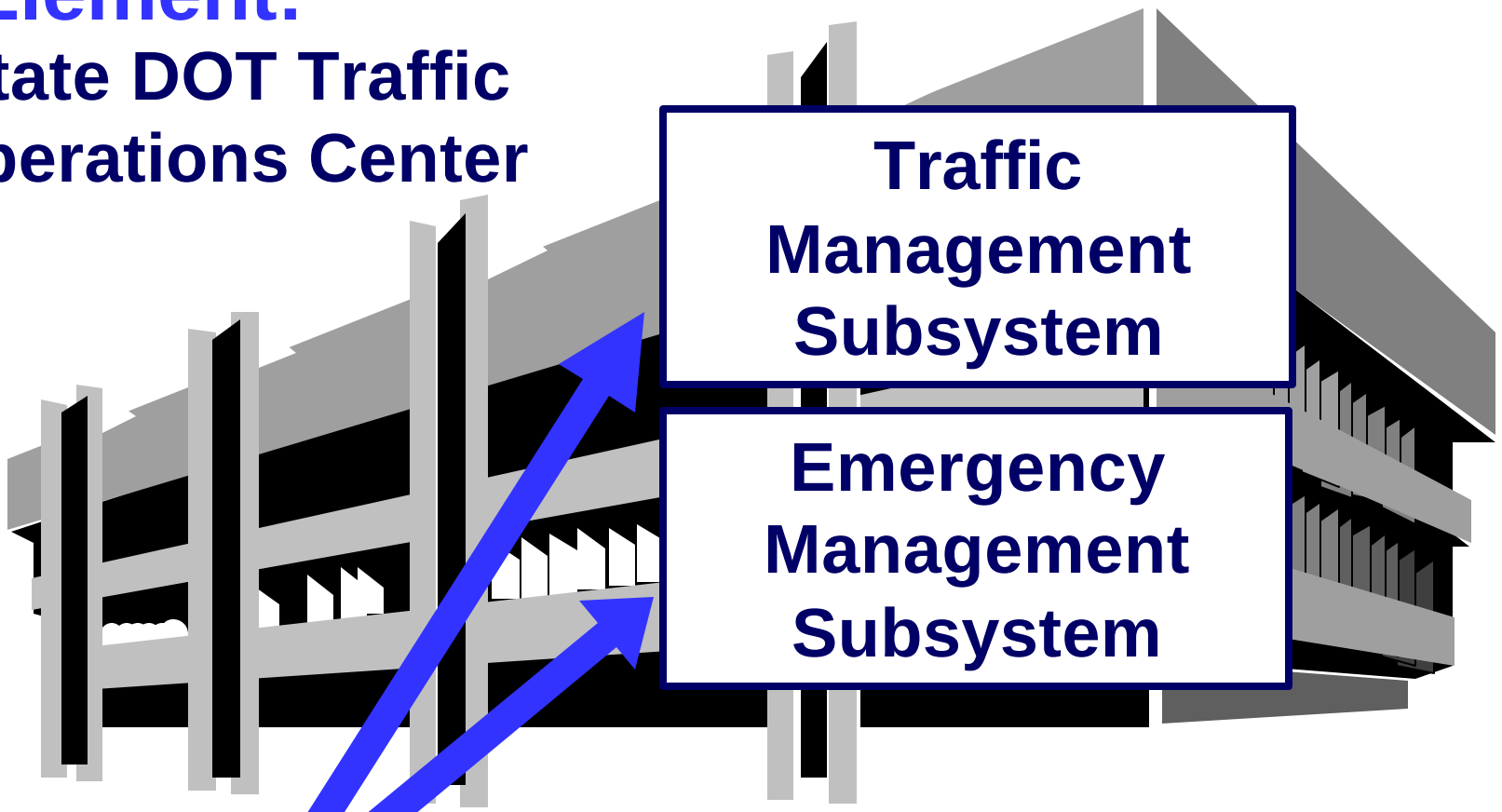
Elements vs. Entities

Element:

State DOT Traffic Operations Center



Entities

How does the National ITS Architecture help?

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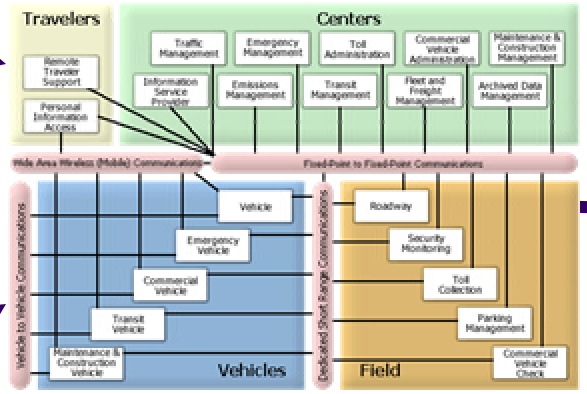
Nat'l Arch

- ITS inventory
- Transportation Services



- Possible Interfaces