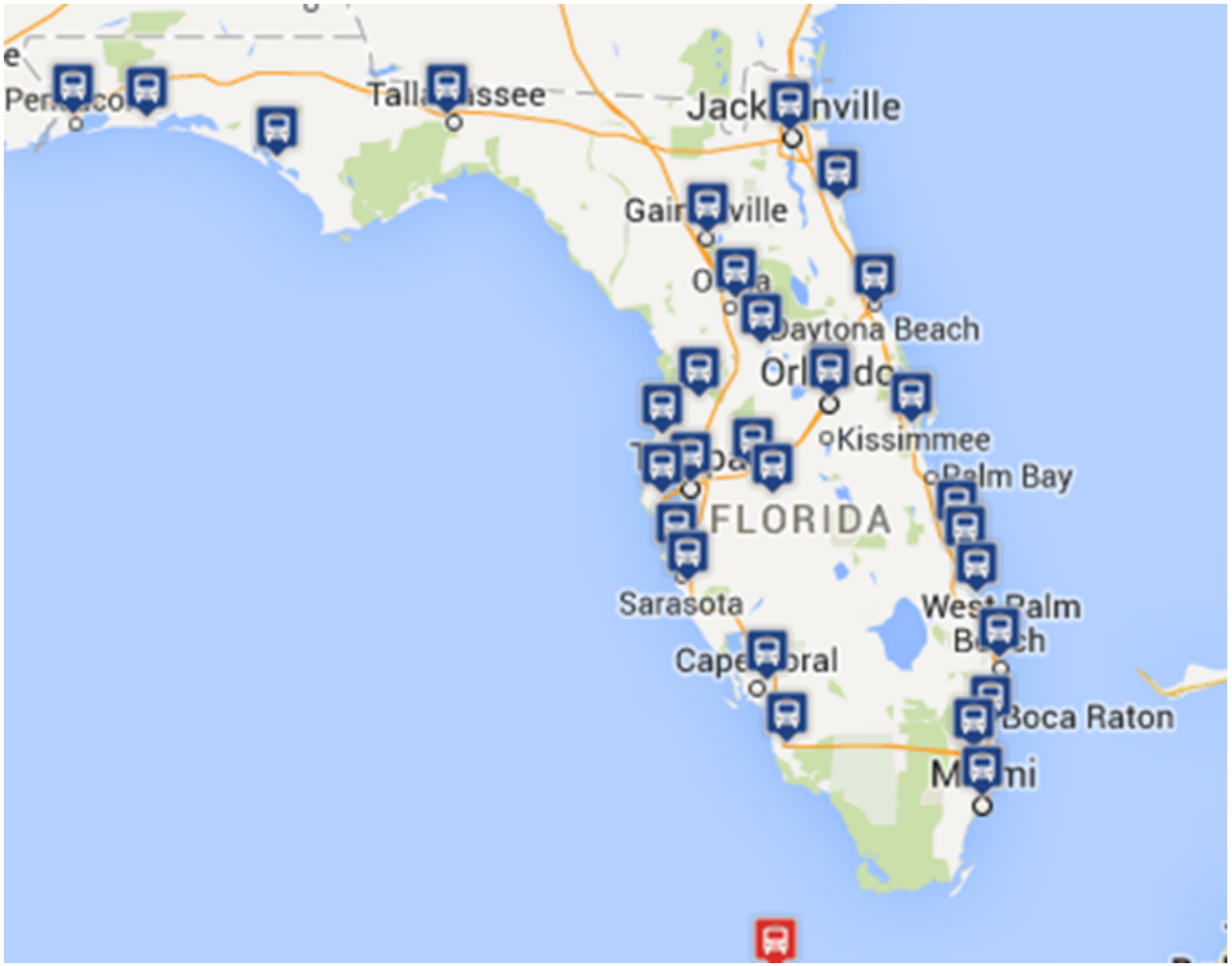
Understanding the range of transit choices

Over 270 million boardings on fixed-routes in 2012



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Transit Choices: Vanpool

Key characteristics

- Service area: participant driven
- Capacity: 7 to 15 passengers
- Frequency: Pre-determined demand
- Operating speed: variable
- Station/stop spacing: a few locations

Common issues

- Dependability based on traffic conditions
- Most effective when paired with guaranteed ride home

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Transit Choices: Bus

Key characteristics

- Service area: suburban, urban, urban core major corridors
- Capacity: 25-40 seated, 60 total (seated + standing) for a 40-foot bus; more for articulated buses and less for shuttle buses and demand-response vehicles
- Frequency: based on route demand; typically 6 buses per hour for peak service (10 buses per hour for enhanced bus service peak), less frequently off peak
- Operating speed: 8-12 mph average for local bus, 10-15 mph average for enhanced bus, 50 mph max for all buses
- Station/stop spacing: 0.25-0.5 mile for local bus, 0.5 -1.0 mile for enhanced/limited-stop bus

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Transit Choices: Bus

Common Issues

- Service area: suburban, urban, urban core major corridors
- Operation in mixed traffic degrades performance
- Bus bunching/scheduling
- Siting of storage & maintenance facilities
- Stop quality
- Image and market positioning
- Equipment age

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Transit Choices: Bus Rapid Transit

Key characteristics

- Service area: urban, suburban
- Capacity: 40-60 seated, 90 total per bus (seated + standing), about 120 total for an articulated bus
- Frequency: 10 buses per hour during peak, 3-6 buses per hour during off-peak
- Operating speed: 10-65 mph, 12-20 mph average
- Station/stop spacing: 0.5 - 2 miles

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Transit Choices: Bus Rapid Transit

Common issues

- Dedicated or shared R-O-W
- Signal priority
- Determining “essential” amenities
- Siting of stations, intermodal stations or terminals
- Interface with other modes

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Transit Choices: Intercity Bus

Key characteristics

- Service area: regional, national
- Vehicle Capacity: 50-60 seated passengers
- Frequency: low
- Operating speed: 42-46 mph average, 75 mph max
- Station/stop spacing: Variable between stops

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Transit Choices: Intercity Bus

Common issues

- Access and circulation
- Wayfinding
- Low-frequency service
- Limited stops
- Supporting services at origins & destinations
- Interface with local and regional systems
- Siting of intermodal stations or terminals
- Safety and security

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Transit Choices: Automated Guideway

Key characteristics

- Service area: downtown core
- Capacity: 30 passengers per car, typically 2-car train consists
- Frequency: 10-20 trains per hour during peak
- Operating speed: 25-50 mph average
- Station/stop spacing: 0.25-0.5 mile between stations

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Transit Choices: Automated Guideway

Common issues

- Single track “loop” operations are common
- Elevated structure access and circulation
- Safety and security

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Transit Choices: Streetcar

Key characteristics

- Service area: downtown core, dense mixed-use urban corridors
- Capacity: 30-50 seated per car, 120 total per two-car consist (seated + standing)
- Frequency: 4-8 trains per hour during peak
- Operating speed: 10 to 40 mph, 8-12 mph average
- Station/stop spacing: 0.1-0.5 mile between stops

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Transit Choices: Streetcar

Common issues

- Dedicated or shared R-O-W
- Signal priority
- Utilities
- Parking
- Operational responsibility & funding
- Service frequency
- Interface with other local and regional systems
- Economic development impacts

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Transit Choices: Light Rail

Key characteristics

- Service area: urban core, metro area suburbs
- Capacity: 40-80 seated per car, 180 total for 2-car consist (seated + standing)
- Frequency : 6-12 trains per hour during peak
- Operating speed: 30 to 65, mph, 20-25 mph average
- Station/stop spacing: 0.5-2 miles

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Transit Choices: Light Rail

Common issues

- Dedicated R-O-W
- Utilities
- Signal priority
- Bus system alignment
- Station locations and area planning
- Parking
- Maintenance facility siting
- Service frequency
- Effects on community character and transitions

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Transit Choices: Heavy Rail

Key characteristics

- Service area: urban core, regional suburbs
- Capacity: 120-150 per car (seated + standing), 2-12 cars per train consist, depending on system
- Frequency: 10-25 trains/hour (peak)
- Operating speed: 50 – 80 mph, 30 mph average
- Station/stop spacing: 1/3 to 1 mile

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Transit Choices: Heavy Rail

Common issues

- Impacts of “third rail” separation
- Station location and scale
- Off-peak service frequency
- Interface with “feeder” systems
- Displacement of existing services
- Safety and security

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Transit Choices: Commuter Rail

Key characteristics

- Service area: downtown core, inner and outer suburbs along existing rail corridors
- Capacity: 90-190 per car, 2-12 cars per train consist
- Frequency: peak-period, peak-direction service (2-4 trains per hour)
- Operating speed: 30-65 mph, 25-40 mph average
- Station/stop spacing: 2-8 miles

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Transit Choices: Commuter Rail

Common issues

- Shared corridor issues with freight operations
- Grade crossings
- Noise and vibration
- Station locations & area planning
- Low service frequency off-peak and reverse peak direction
- Local connectivity
- Interface with other modes

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Transit Choices: Intercity Passenger Rail

Key Characteristics

- Service area: connects metro-area urban centers
- Capacity: 75-100 per car
- Frequency: 1-2 trains/day (long distance/cross- country); 1-6 trains per day (short distance/state service), 25+ trains per day (Northeast Corridor)
- Operating speed: 80-150 mph
- Station/stop spacing: Varies widely based on area development and route type, typically 10-50 miles

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Transit Choices: Intercity Passenger Rail

Common issues

- Station locations & area planning
- On-time Performance
- Access and circulation
- Wayfinding
- Limited frequency
- Shared corridor issues with freight operations
- Grade crossings
- Local connectivity
- Interface with other modes

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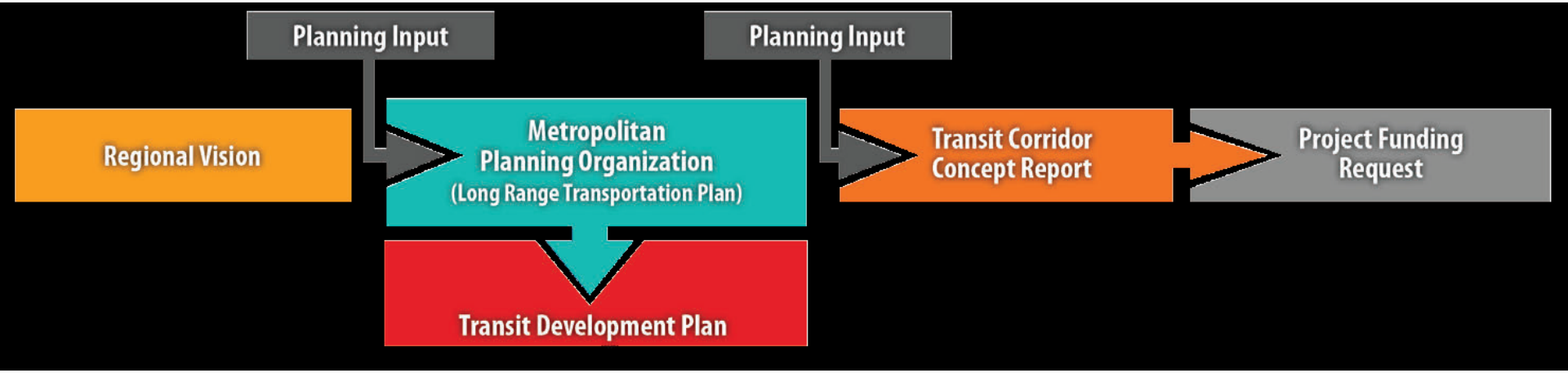
FDOT participation in fixed-guideway projects



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Roles and responsibilities

How should FDOT participate in all transit projects during:

- Systems planning?
- Project planning?
- Environmental review?
- Project design?
- Project funding and finance
- Project construction?
- Operations?

What relationships—internal and external to the agency—are required achieve this?

Transit Mission—The mission of the FDOT Transit Office is to "identify, support, advance, and manage cost-effective, efficient, and safe transportation systems and alternatives to maximize the passenger-carrying capacity of surface transportation facilities."

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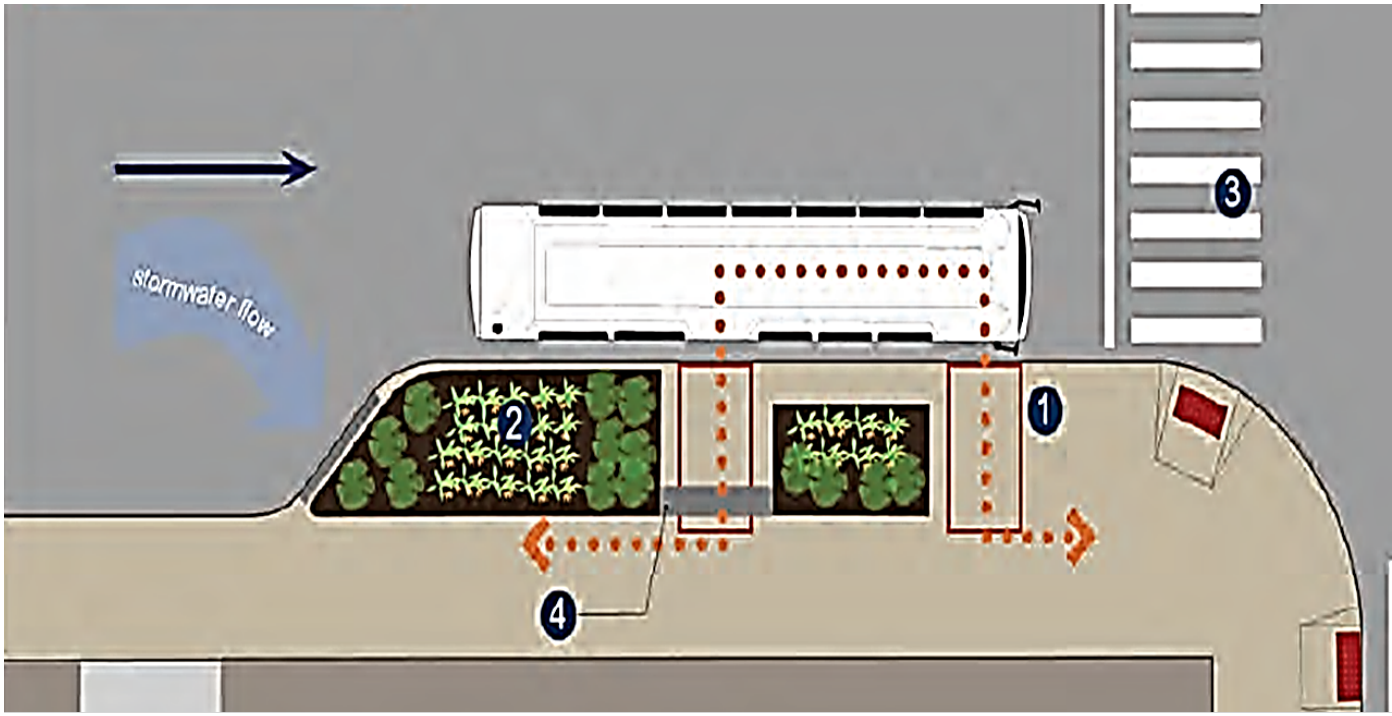
Design Considerations – Priorities Competing for Roadway Space

- What were the tradeoffs here?
- Would you make these choices?
- What authorities are involved in the decision?



Source: DVRPC 2012

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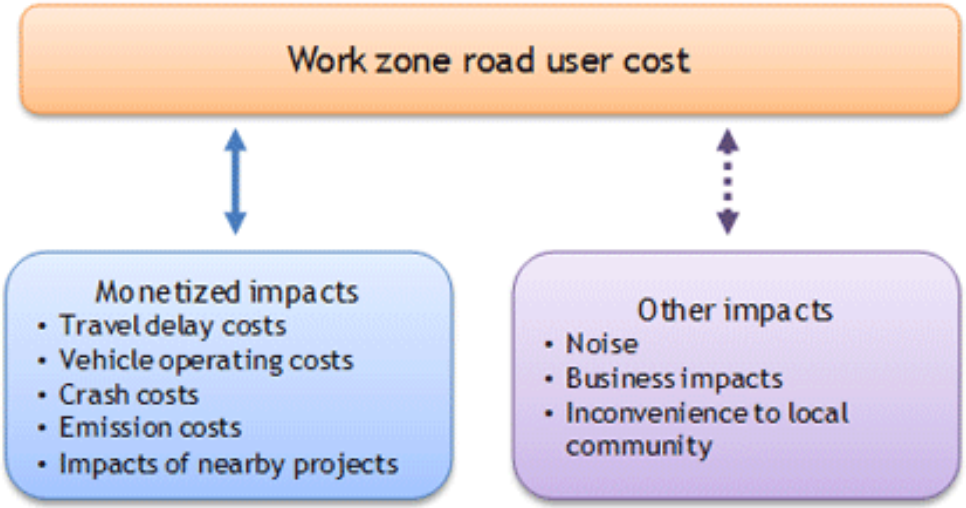
Operational Considerations

Discussion Topics

- Agency/Operational Communications
- Traveler Information

Addressing operational conflicts: construction

What about transit?



www.ops.fhwa.dot.gov

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Operational Considerations – Signal Priority

Multiple special phases

Multiple controllers?

ITS Redundancy?

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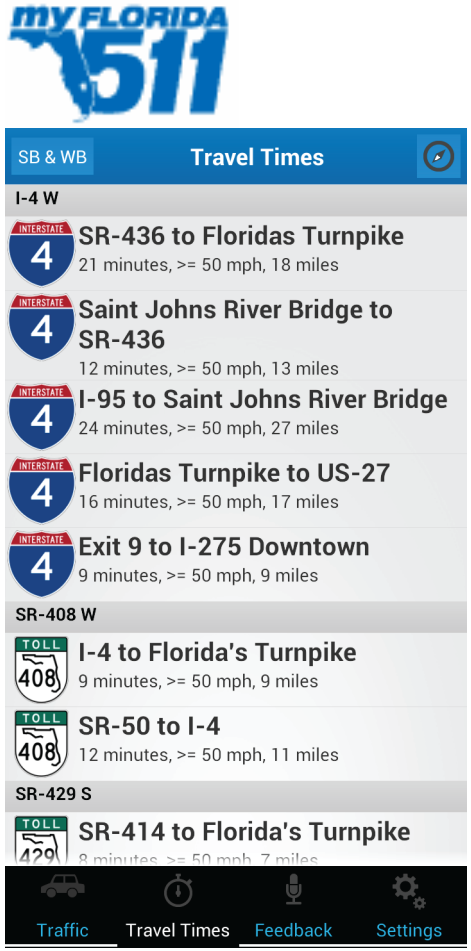
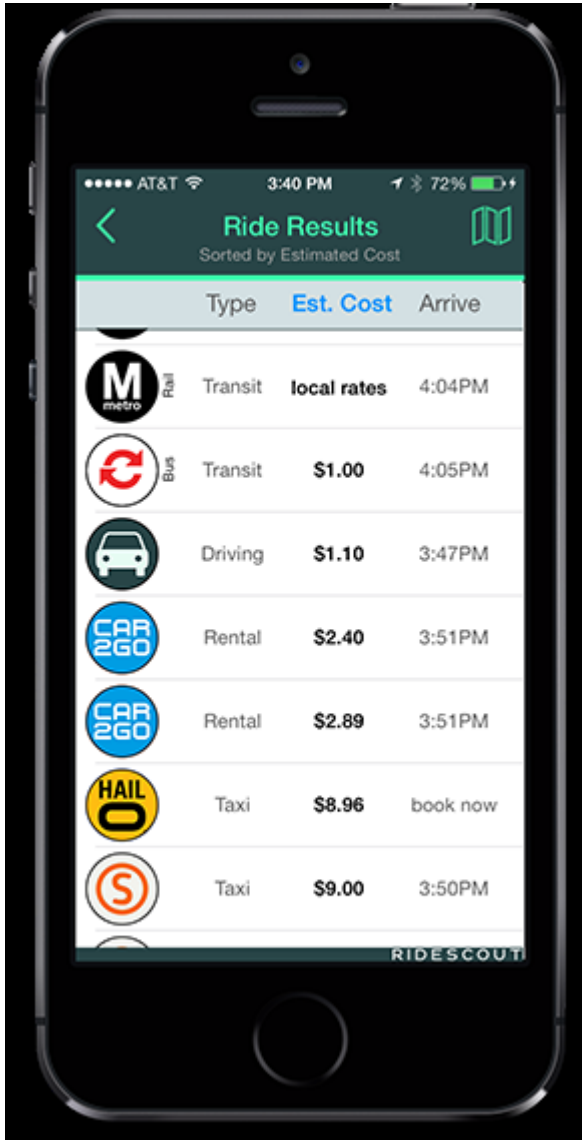
Operational Considerations – Traveler Information



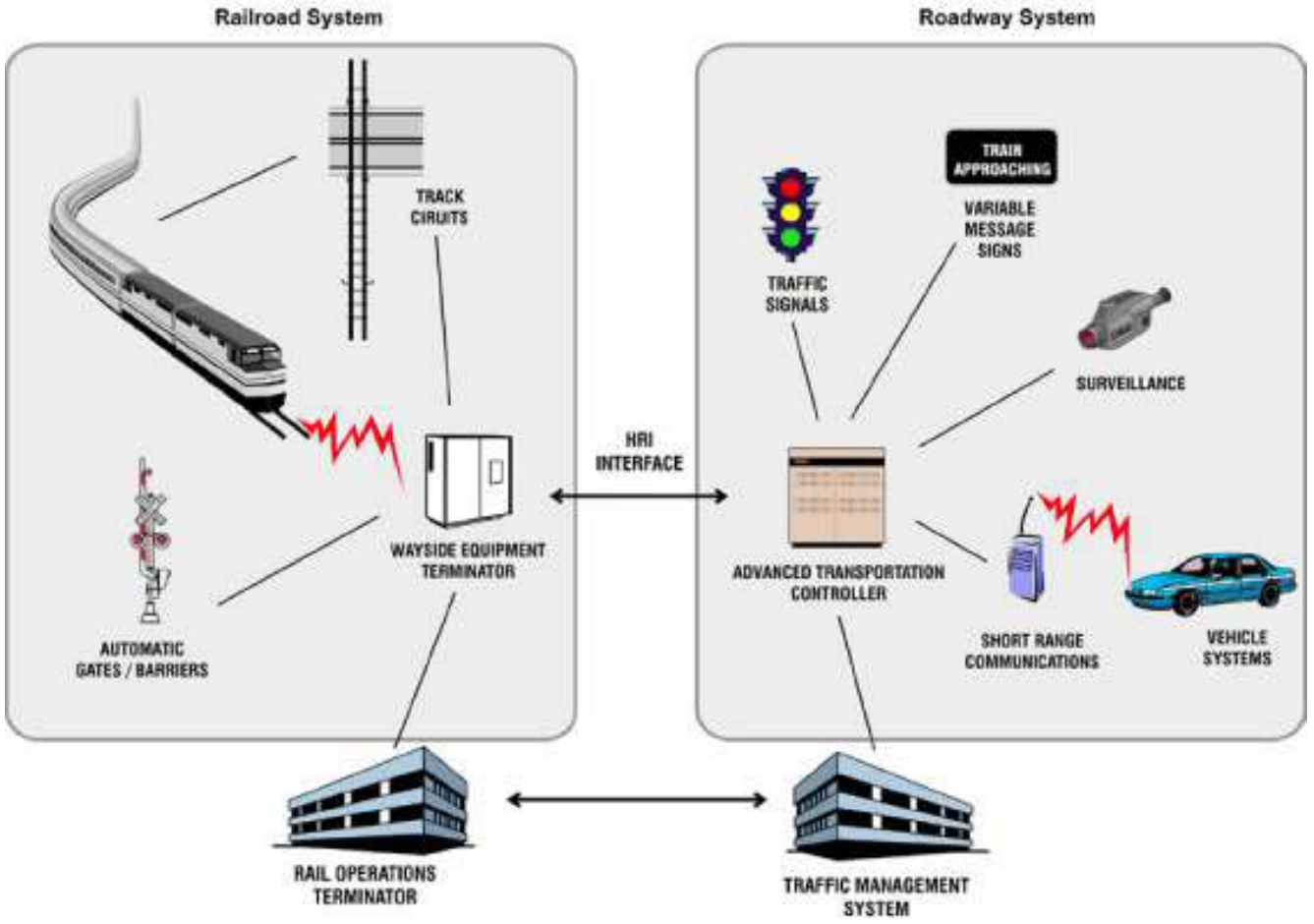
Florida511

V

Ridescout



Rail Grade Crossings



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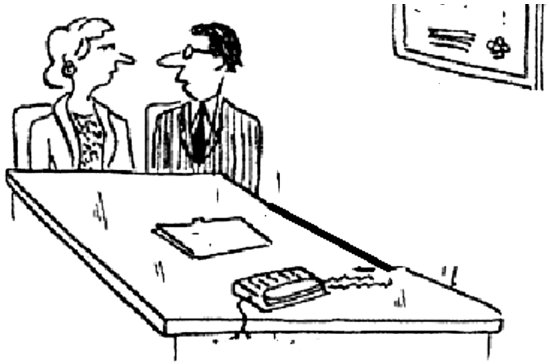
Addressing operational conflicts: communications

How are transit providers plugged in?

Radio frequencies

Emergency/first responders

What happens if there is a bus fire?



"What do you mean we don't communicate? I sent you e-mail on Monday."

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Navigating community & environmental concerns

Typical Issues

- R-O-W acquisition and displacements
- Traffic
- Noise and vibration
- Cultural and historic resources
- Parkland
- Wetlands
- Habitat
- Stormwater management

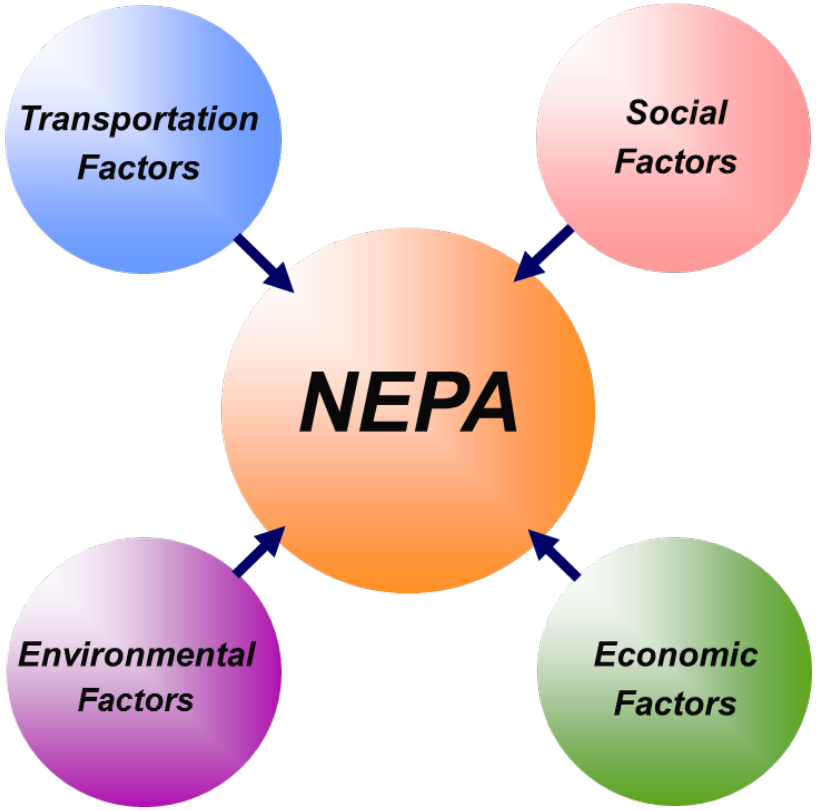

Diagram: National Transit Institute

Navigating community & environmental concerns

Drivers to keep in mind

- Differences in FTA and FHWA project development & environmental review
- Scope of environmental concerns vary considerably based on modal characteristics and context
- Public perceptions of trade offs and what is and is not worthwhile

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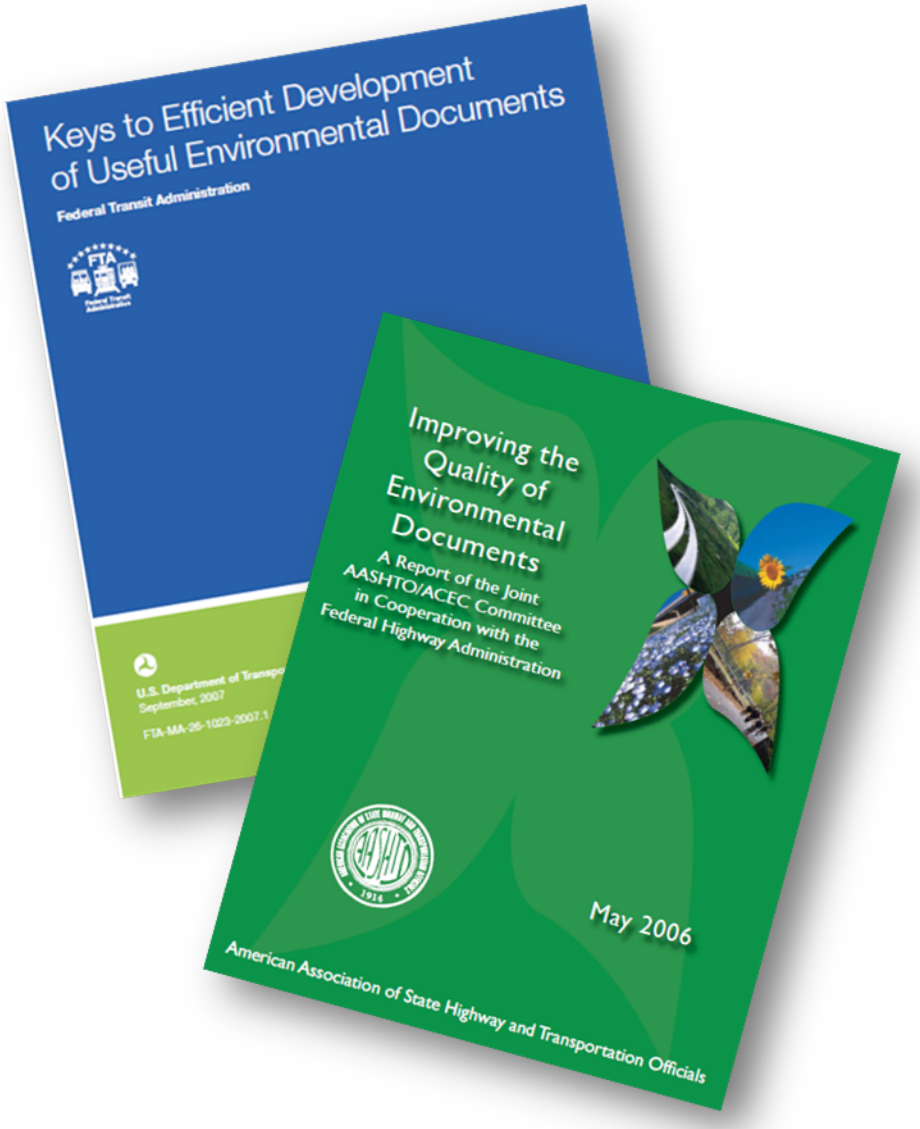
Resolving environmental considerations

Differences in FTA and FHWA environmental review

- Timing of NEPA process
- Level of detail during environmental review
- Differences in policies, regulations and guidance
- FTA "back to basics" and streamlining environmental review
- FTA staffing of projects



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Navigating community context

Typical priority concerns

- Effect on property values
- Impacts to community character and “feel”
- Development impacts
- “Outsiders” coming into the neighborhood
- Visual impacts
- Safety and security
- Traffic congestion
- Parking
- Noise and vibration
- Value for public monies spent

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Understanding the range of transit choices