American Planning Association
Georgia Chapter

Making Great Communities Happen

AICP EXAM REVIEW

Transportation Planning

January 18, 2013
Georgia Tech Student Center

Agenda

- Defining transportation planning
- Transportation Stakeholders
- Transportation plan development
- Project development process
- Transportation funding
- Identifying solutions / analyzing impacts

What is Transportation Planning?

- The process of identifying transportation problems and looking for solutions to those problems is called transportation planning.
- With transportation planning, we work out the best ways to get you to . . .
- where you live,
- where you work,
- where you shop,
- where you go to school,
- where you take vacations, and
- . . . anywhere else you need to go.

Who are the players?

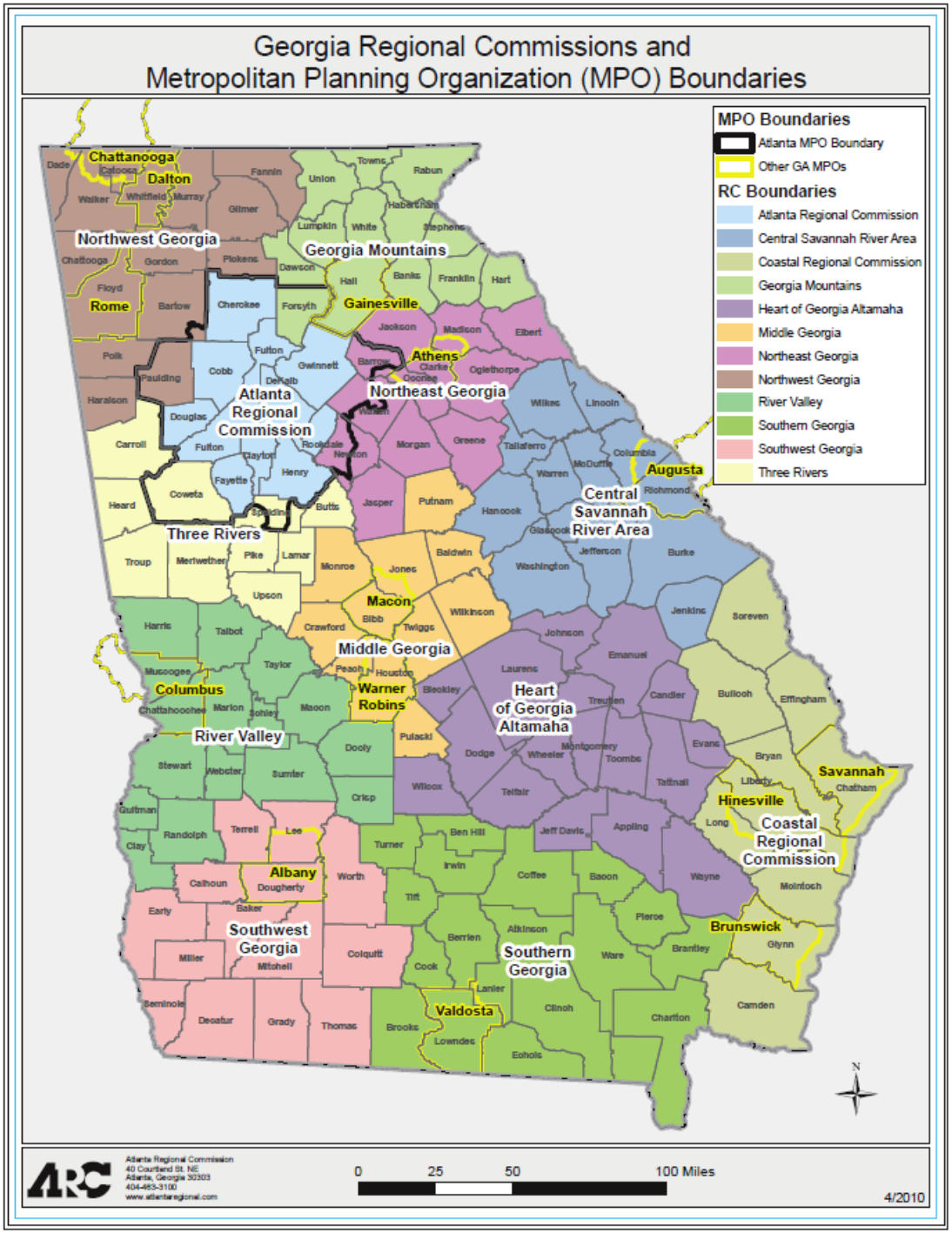
- State Departments of Transportation (DOTs)
- Metropolitan Planning Organizations (MPOs)
- Federal Government
- Local Governments
- Transit Agencies
- Other Groups
  - Regional Planning Agencies
  - Community Improvement Districts

State Departments of Transportation

- Develop statewide transportation goals, plans and projects.
- Work with all of the state's transportation organizations and local governments
- Recipient of Federal Funds
- Subject to federal planning requirements:
  - Statewide Transportation Plan
  - State Transportation Improvement Program (STIP)
  - Air Quality
  - Environmental
  - Other

Metropolitan Planning Organizations

- Federally designated planning agency for urbanized areas - contiguous population of 50,000 people or more.
- Governed by Policy Board of local elected officials
- Address Federal Requirements:
  - Long-Range Transportation Plan (RTP)
  - Transportation Improvement Program (TIP)
  - Air Quality Conformity
  - Congestion Management Process
  - Public Involvement / Social Equity
  - Others
- 15 MPOs in Georgia


Georgia Regional Commissions and
Metropolitan Planning Organization (MPO) Boundaries
MPO Boundaries
Atlanta MPO Boundary
Other GA MPOs
RC Boundaries
Atlanta Regional Commission
Central Savannah River Area
Coastal Regional Commission
Georgia Mountains
Heart of Georgia Altamaha
Middle Georgia
Northeast Georgia
Northwest Georgia
River Valley
Southern Georgia
Southwest Georgia
Three Rivers
Chattanooga
Dalton
Northwest Georgia
Georgia Mountains
Rome
Gainesville
Athens
Northeast Georgia
Atlanta Regional Commission
Augusta
Central Savannah River Area
Three Rivers
Macon
Middle Georgia
Columbus
Warner Robins
Heart of Georgia Altamaha
River Valley
Savannah
Hinesville
Coastal Regional Commission
Albany
Southwest Georgia
Southern Georgia
Brunswick
Valdosta
N
Atlanta Regional Commission
40 Courtland St. NE
Atlanta, Georgia 30303
404-463-3100
www.atlantaregional.com
0
25
50
100 Miles
4/2010

Federal Government

- The Federal Government (U.S. DOT) oversees the transportation planning and project activities of the MPOs and state DOTs
  - Provides advice and training
  - Supplies critical funding needed for transportation planning and projects
  - Certification of MPOs
  - Environmental approvals on federally funded projects

Local Governments

- Develop local transportation priorities and plans
- Engage in regional and state transportation planning activities
- Conduct studies to identify impacts of new development on the transportation system
- Identify and schedule improvements
- Maintain local streets and roads
- Fund transportation projects

Transit Agencies

- Operate publicly available transportation options including buses, subways, light rail, passenger rail, ferryboats, trolleys
- Quasi-Governmental that receive government subsidies (Federal / State / Local) in addition to generating revenue from private sources such as fares and advertising
- Develop system plans, implement projects and coordinate with state and local governments on regional planning activities

Other Agencies

- Community Improvement Districts (CIDs)
  - Public-Private partnership that leverages dollars from member private entities to implement public projects
  - With approval from local government, private commercial property owners vote to self-tax.
  - Board of Directors makes decisions regarding projects to implement
- Regional Commissions (RCs)
  - Regional planning agency providing support to local governments

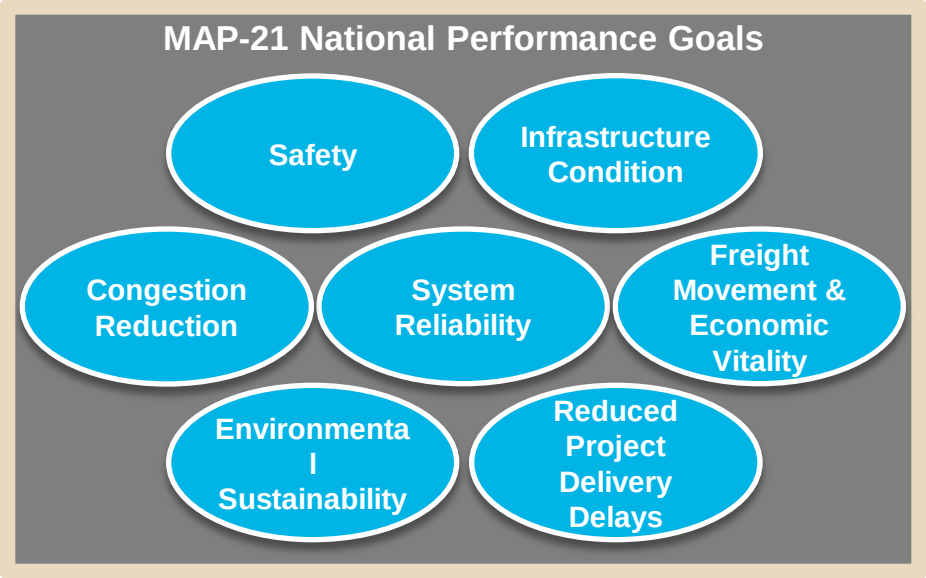
Transportation Plans & Programs

- Establish vision, goals, and objectives and based on:
  - Existing transportation needs
  - Future transportation needs based on:
    - Projected Population Growth
    - Projected Economic Changes
- Framework from which to identify and prioritize projects (air, bicycle, bus, rail, roads, pedestrian, and water)

MAP -21 – Federal Surface Transportation Legislation

- *Moving Ahead for Progress in the 21st Century* (MAP-21) – signed July 2012
- Over $105 Billion authorized for FY 2013 and FY 2014
- First long-term authorization since 2005 (SAFETEA-LU)
- Performance-Based Planning Approach

MAP -21 Performance Goals



Performance Reporting

- National Highway System performance and key safety issues
- Freight congestion
- Strategic investment in asset management
- Performance measures and targets developed as part of the State's Transportation Plan

Planning Process

- **Continuing:** Planning must be maintained as an ongoing activity and should address both short-term needs and the long-term vision for the region.

- **Cooperative:** The process must involve a wide variety of interested parties through a public-participation process.

- **Comprehensive:** The process must cover all transportation modes and be consistent with regional and local land-use and economic-development plans.

Planning Inputs and Tools

- Current Data and Data Forecasts
- Geographic Information Systems
- Travel Demand Models
- Microsimulation
- Stakeholder Engagement

Planning Documents

Local Plans:

- Comprehensive Transportation Plans (CTPs)

Regional Plans*:

- Regional Transportation Plans (RTP)
  - 30-Year Time Horizon
  - Fiscally Constrained
- Transportation Improvement Program (TIP)
  - Short-range Time Horizon
  - Programmed Funding

State Plans*:

- Statewide Transportation Improvement Program (TIP)
- Statewide Transportation Plan
  - Modal Plans (e.g. Freight, Transit, Aviation)

*-Federally Mandated

Planning Considerations / Special Requirements

- Air Quality
  - Plans must comply with Environmental Protection Agency (EPA) limits on emissions. Modeling used to demonstrate air quality ***conformity.***

- Environmental Justice
  - U.S. Executive Order 12898 defines environmental justice as the fair treatment and meaningful involvement of all people – regardless of race, ethnicity, income, or education level – in transportation decision-making.

Project Development Process

- To proceed to implementation, projects must:
  - appear in the TIP and/or STIP w/funding source;
  - consider citizen input; and
  - have approval by transportation officials.
- Steps include: planning, environmental analysis, design, right-of-way acquisition, permitting, and construction.

Environmental Analysis

- **The National Environmental Policy Act of 1969 (NEPA)** enunciated for the first time a broad national policy to prevent or eliminate damage to the environment.
  - Environmental impact analysis must be performed for any project receiving federal funds.
  - Required to proceed with ROW acquisition and construction.

- All alternatives consistent with the objective of each project must be evaluated to find the best transportation solution that helps preserve and protect the value of environmental and community resources.

The NEPA Process

- Evaluation to determine project impacts to the community, the natural environment, and our health and welfare.
- Before any project can move advance to ROW and construction, the Federal agencies require compliance with more than 40 laws related to safety and the environment.

Transportation Funding

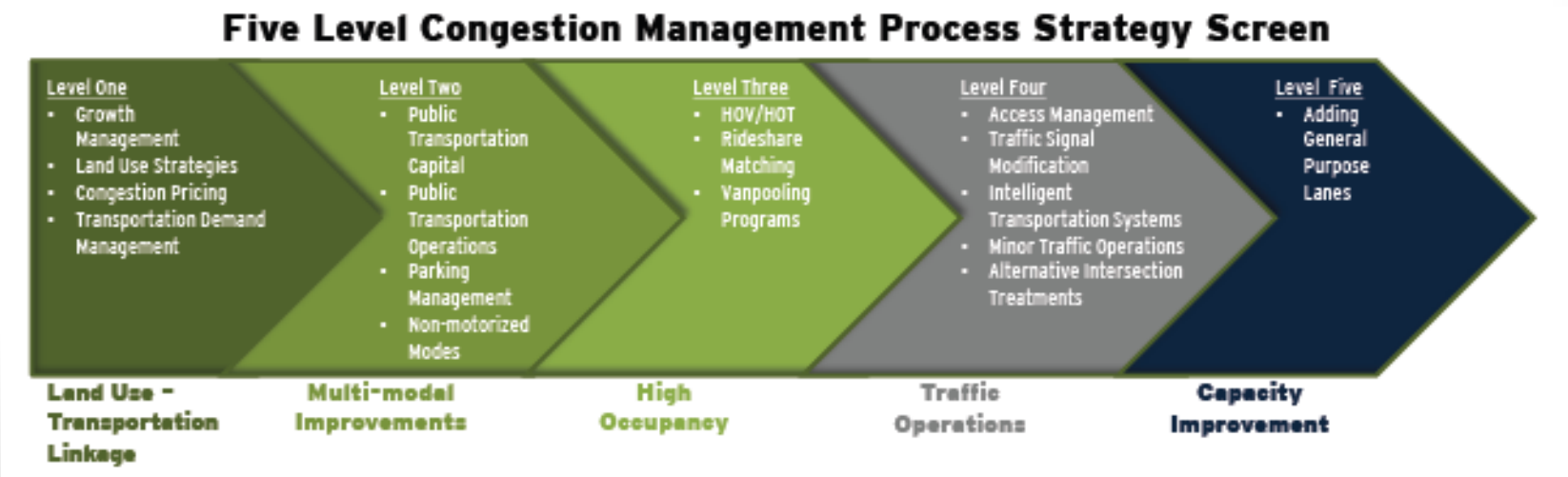
- States and MPOs must identify project funds that will be readily available over the life of the Transportation improvement Program (TIP).

Transportation Funding 101

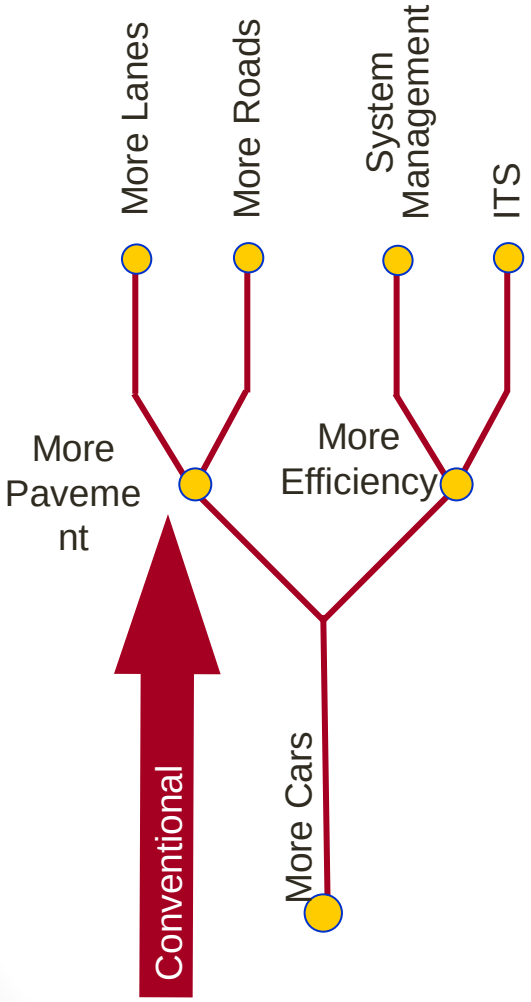
- Federal Apportionments
- Highway Trust Fund
- State Funds
  - General Fund
  - State Motor Fuel Tax
  - Bonds
- Local Funds
  - Special Purpose Local Option Sales Tax (SPLOST)
  - General Fund

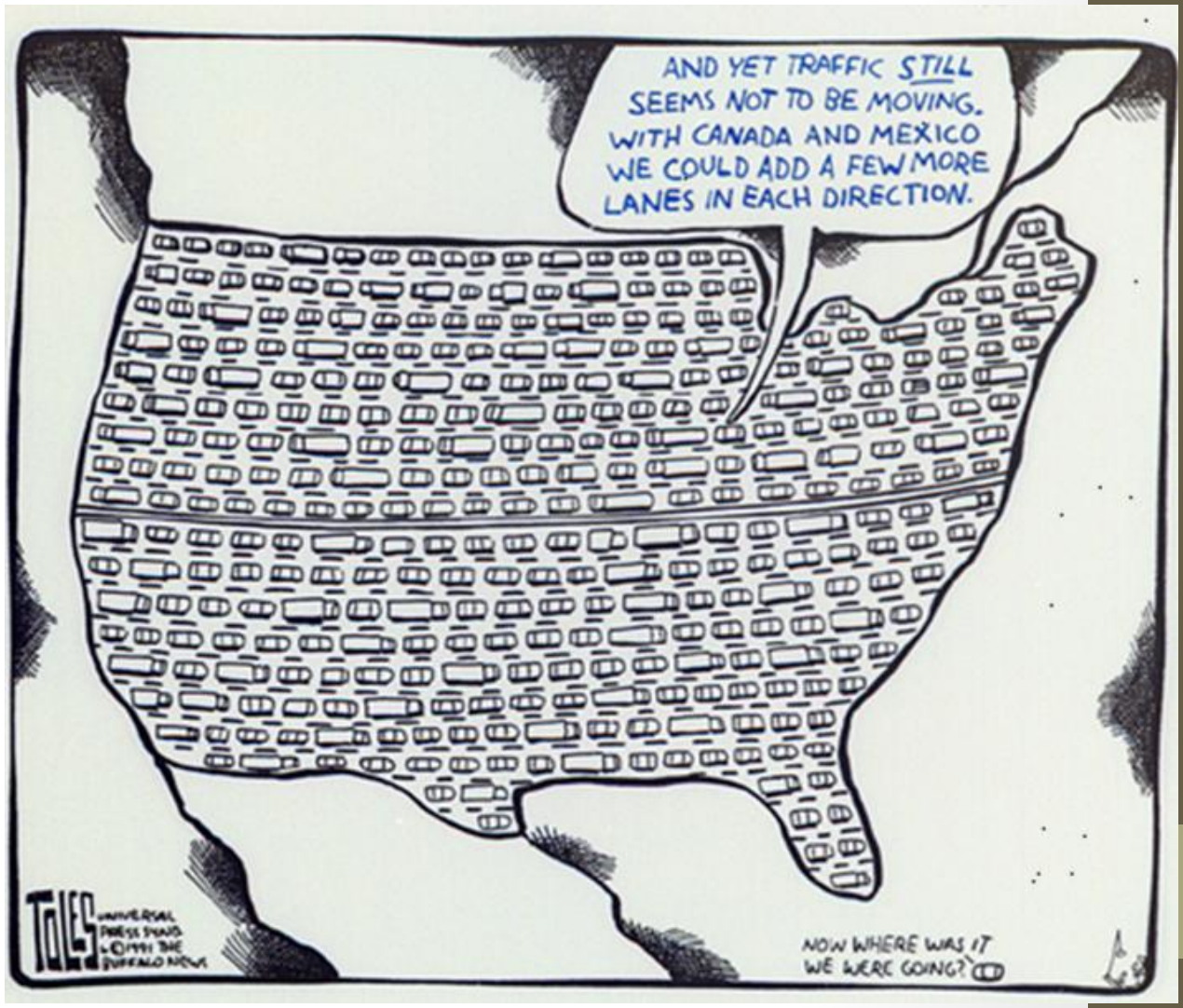
Identifying Transportation Solutions

- Considerations:
  - Future Demand
  - Safety
  - Roadway Operations
  - Preservation
  - Land Use Linkage



Complementary Approaches





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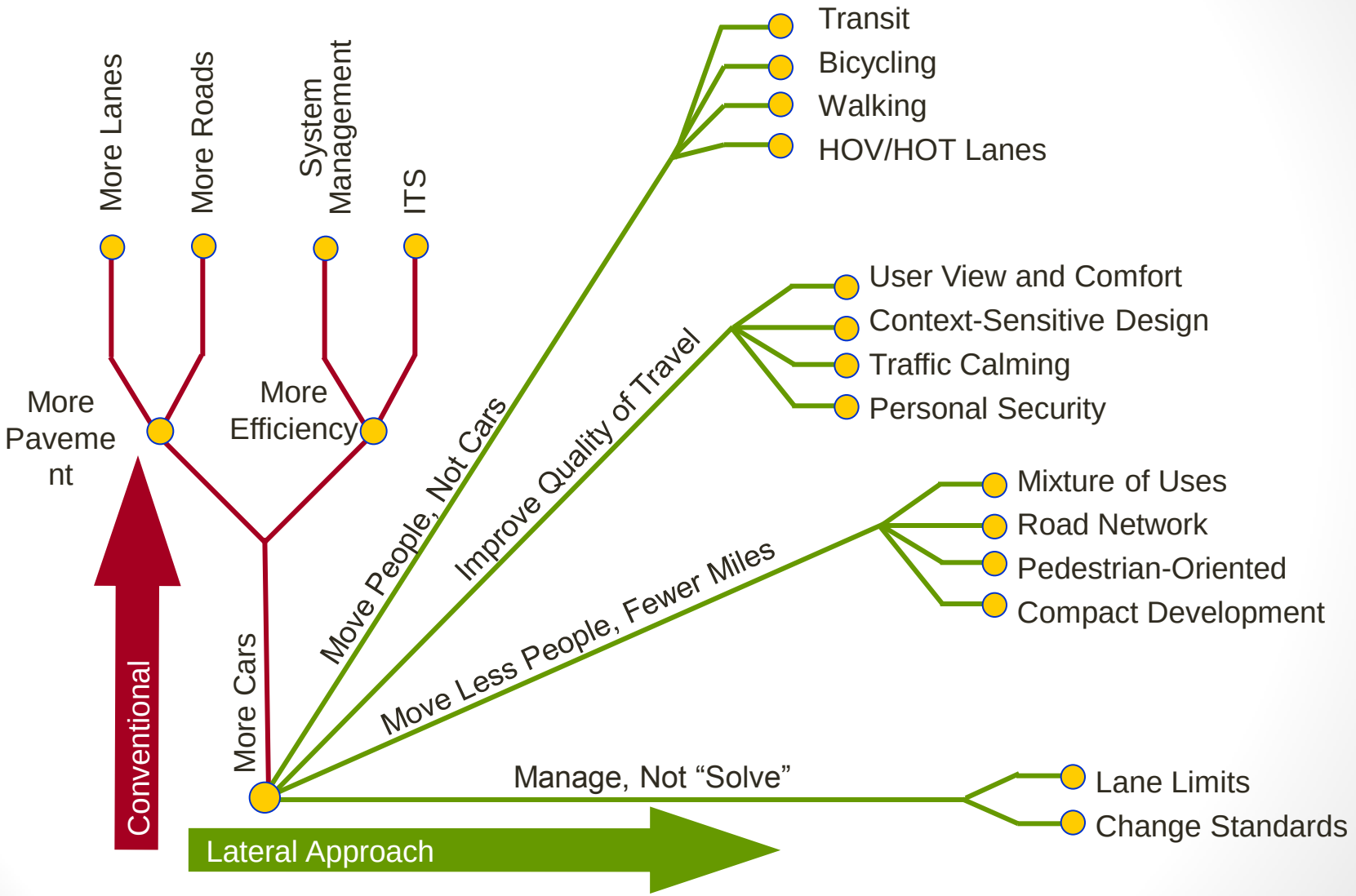
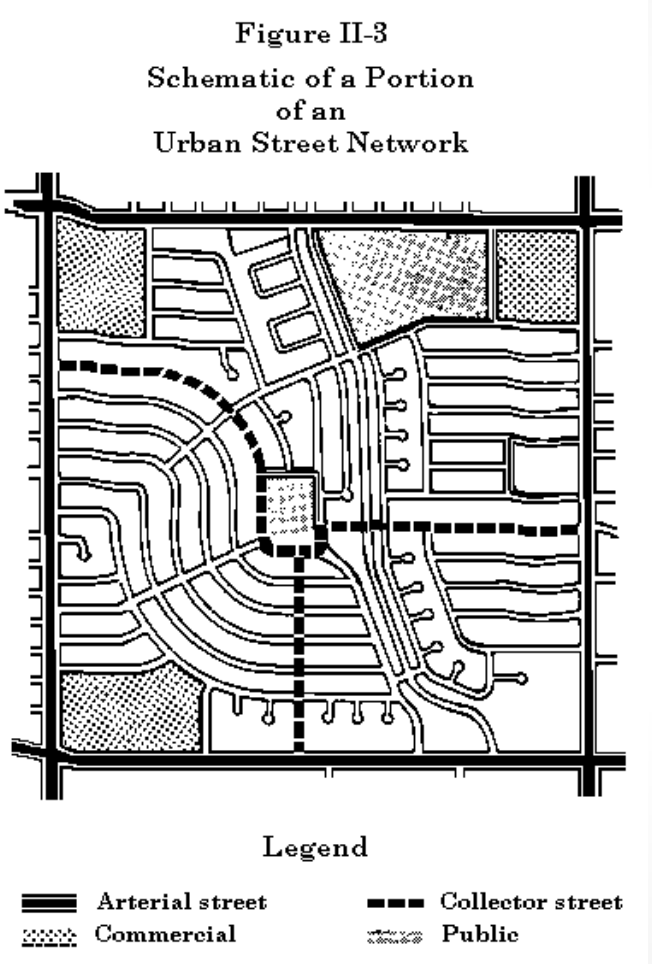


Functional Classification

- Interstates
- Freeways
- Principal arterials
- Minor arterials
- Collector roads
- Local roads



Source: FHWA

Travel Forecasting Process

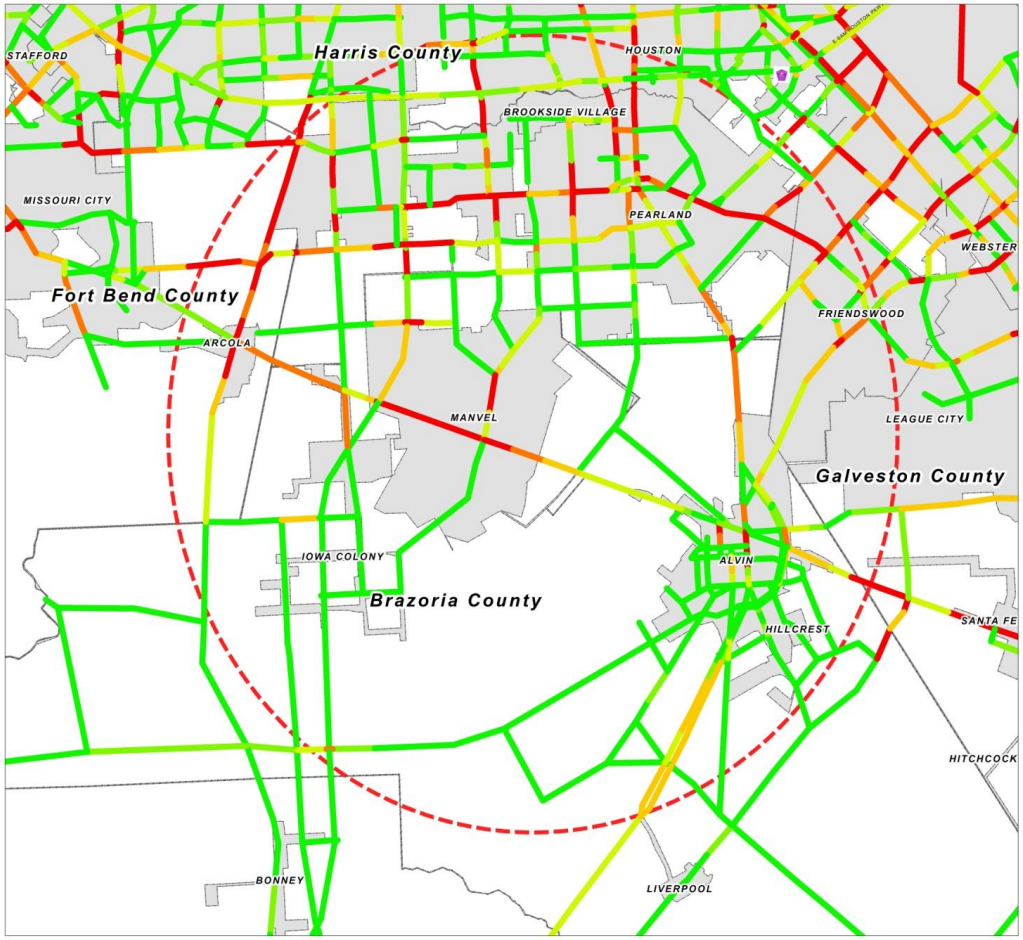
- Four technical phases:
  - Collection of data – *counts, surveys, etc.*
  - Analysis of data - *socioeconomic sources*
  - Forecasts of activity and travel – *future projections*
  - Evaluation of alternatives - *application of tools*

- Evaluation approaches:
  - Demand Analysis
    - Travel Demand Modeling
  - Operational Analysis
    - Microsimulation

Travel Demand Forecasting – Four Step Model

- **Trip generation** - estimates the number of trips generated by different types of land use
- **Trip distribution** - estimates where the generated trips will go
- **Mode split** - estimates which trips will use transit and which will use auto
- **Trip assignment** - assigns trips by each mode to the roadway network

Sample Model Output



Legend

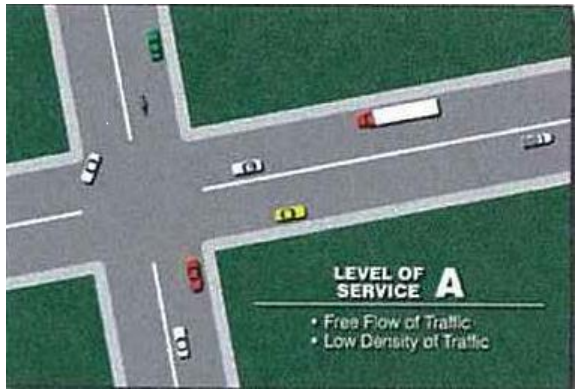
Volume/Capacity Ratio | LOS

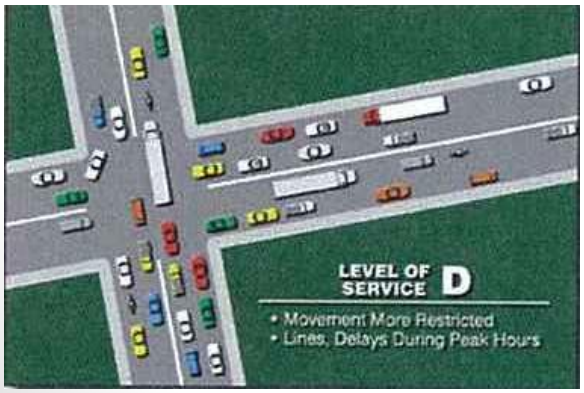
- Less than 0.60 | LOS A
- 0.61 - 0.70 | LOS B
- 0.71 - 0.80 | LOS C
- 0.81 - 0.90 | LOS D
- 0.91 - 0.99 | LOS E
- Greater than 1.00 | LOS F

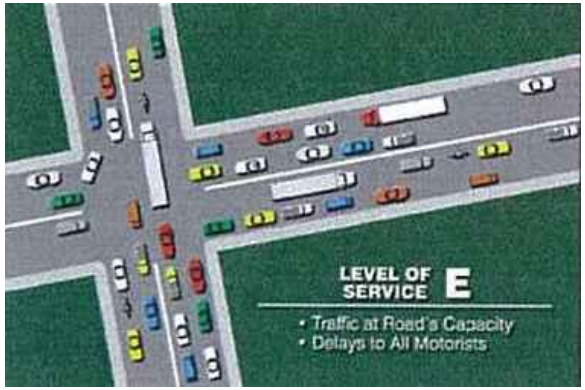
- 45 Interstate Highway
- 90A US Highway
- Sam Houston South Tollway
- 3 State Highway
- 1462 Regional/County Road
- Local Streets
- Railroad
- Study Focus Area
- Pearland City Limits
- Brazoria County Line

Capacity Analysis

- Volume (Average Daily Traffic) to Capacity Ratio
- Level of Service (LOS)
  - Measure of Traffic Flow Used to Describe Operating Conditions from the Perspective of Travelers



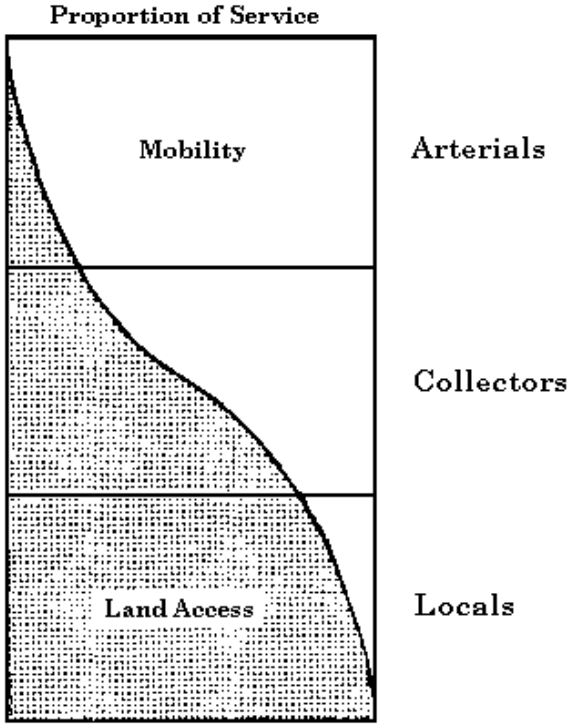




Balancing Transportation and Land Use

Figure II-4

Relationship of functionally Classified Systems in Serving Traffic Mobility and Land Access



Source: FHWA

- Hierarchy of facilities based on access requirements
- Coordinate with plans for future land use and development

Traffic Impact Analysis

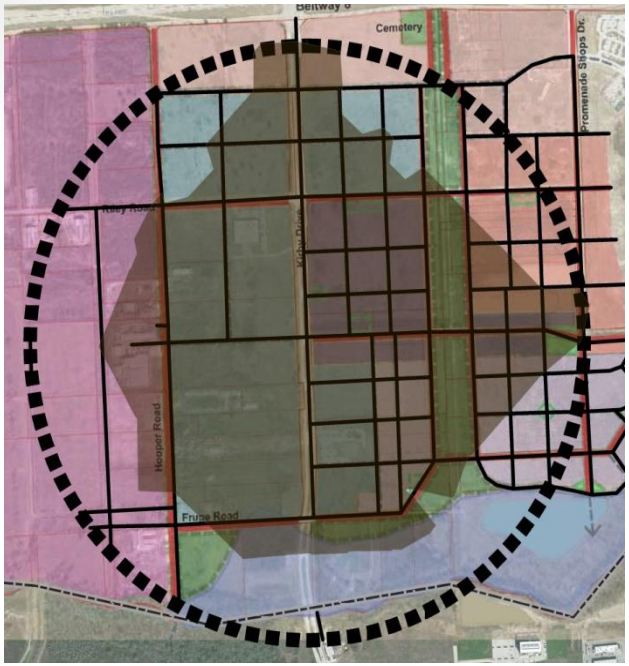
- Understanding the demands placed on the community's transportation network by new development

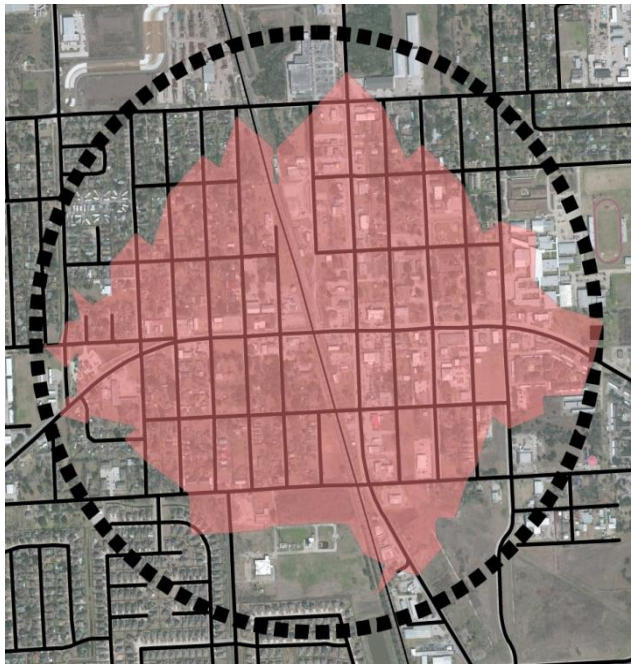
- Goals
  - Forecast additional traffic associated with new development, based on accepted practices
  - Determine the improvements that are necessary to accommodate the new development
  - Assist communities in land use decision-making
  - Consider alternative modes

Balancing Development Impacts

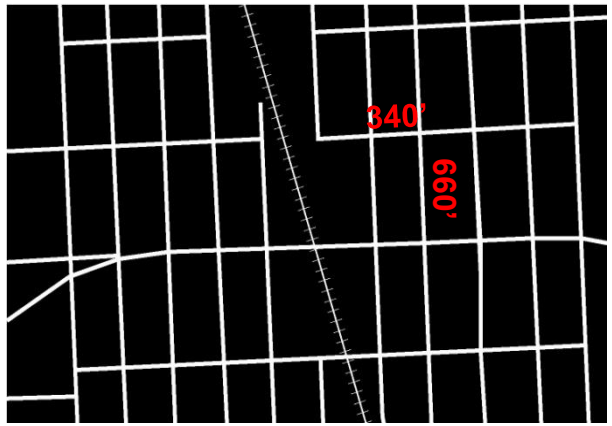
- Parking considerations
- Higher densities to support alternative modes
  - Streetscape, building facade
  - Bus stop and rail station design
- Trip capture / mixed-use development
  - Internal site trips

Block Size = Walkability





Blocks: 400’ x 500’



Blocks: 340’ x 660’

Blocks: 300’ x 310’

Planning for All Users

- “Complete Streets”
- Variety of Modes
- Variety of Ages and Trip Types

Planning for All Users

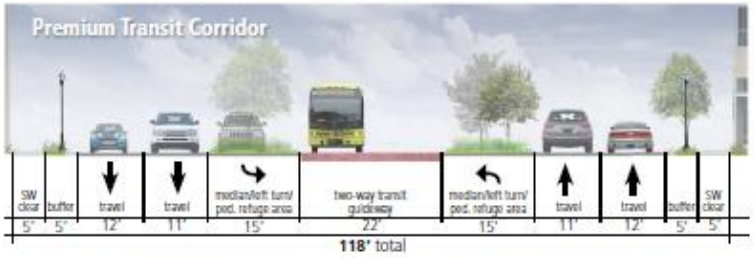
Suburban Low Speed Thoroughfare Design

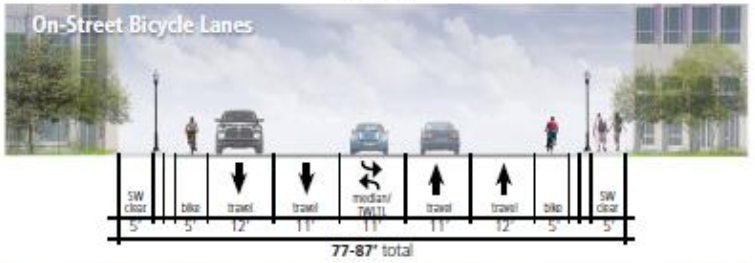
***Level II** Thoroughfares*

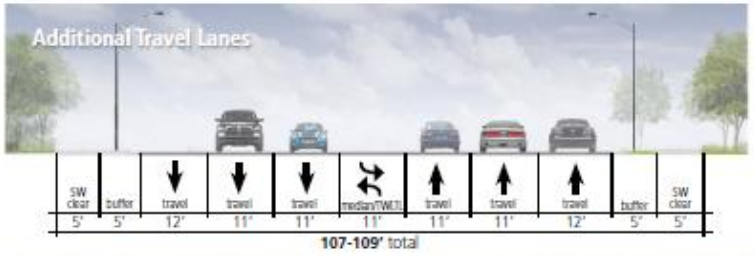
In some suburban contexts, land use patterns and spacing of intersecting streets and driveways suggest that speeds will be lower.

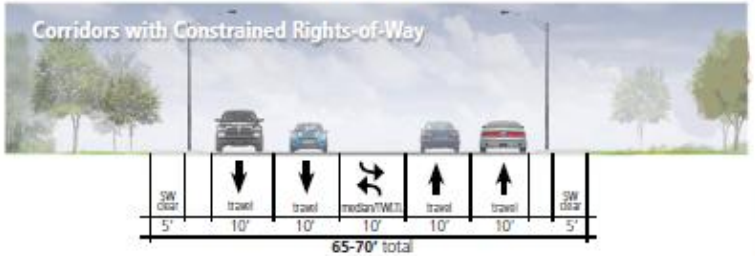
The diagrams on the opposite page illustrate street design components that are likely to land use patterns and spacing of intersecting streets and driveways suggest that speeds will be lower.

Design Element	Standards
Right-of-Way	70'
Number of Lanes	3 or 5, depends on capacity need
Intersection Control	Signals most common, roundabouts may be used on 3-lane sections
Median	8-10', to fit within 10' two-way left turn lane
Lane Widths	10' maximum
Turn Lanes	To be used at intersections as needed
Clear Zone	Minimum 1.5' from back of curb
On-Street Parking	7.5' when used (see diagram on opposite page)
Sidewalk	5' minimum clear width required
Bicycle Lane	5' minimum when used (not including gutter)
Utilities	Underground or within landscape width
Landscaping	5' minimum width when used, either for tree wells or parkway strip
Lighting	Within landscape width









Resources

- Atlanta Regional Commission
  www.atlantaregional.com
- Federal Highway Administration
  www.fhwa.dot.gov/planning
- Transportation Research Board
  www.trb.org

QUESTIONS?