APA GA

American Planning Association
Georgia Chapter

Making Great Communities Happen

AICP EXAM REVIEW

Transportation Planning

February 3, 2012
Georgia Tech Student Center

Agenda

- Defining transportation planning
- Who are the players
- 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?

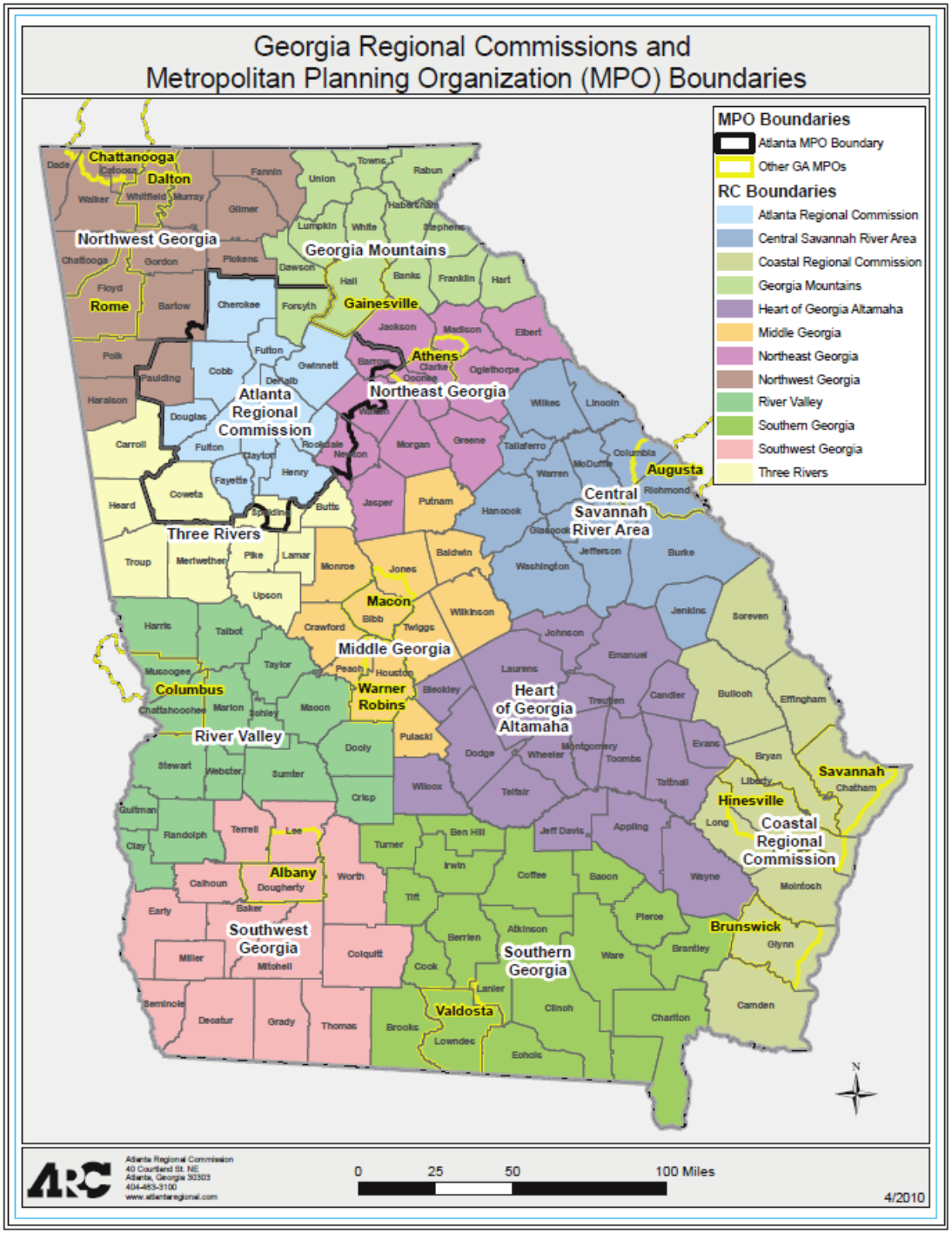
- State Departments of Transportation (DOTs)
- Metropolitan Planning Organizations (MPOs)
- Federal Government
- Local Governments
- Transit Agencies
- Other Groups
  - Regional Planning Agencies
  - Community Improvement Districts

State DOTs

- 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 areas with a population of 50,000 people or more.
- Governed by Policy Board of local elected officials
- Address Federal Requirements:
  - Long Range Transportation Plan
  - Transportation Improvement Program
  - 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
Brunswick
Southern Georgia
Valdosta
Atlanta Regional Commission
40 Courtland St. NE
Atlanta, Georgia 30303
404-463-3100
www.atlantaregional.com
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25
50
100 Miles
4/2010

Atlanta Regional Commission Board Members

Local Elected Officials

- Kasim Reed
- H. Lamar Willis
- Buzz Ahrens
- Donnie Henriques
- Eldrin Bell
- Willie Oswalt
- Mark Mathews
- Burrell Ellis
- Bill Floyd
- Tom Worthan
- Harvey Persons
- Tim Lee
- Herbert Frady
- Eric Dial
- John Eaves
- Mike Bodker
- Ralph Moore
- Bucky Johnson
- Elizabeth "BJ" Mathis
- Billy Copeland
- Richard A. Oden
- Randy Mills
- Charlotte Nash

Citizen Members

- Todd E. Ernst
- Judy Waters
- Kip Berry
- W. Kerry Armstrong
- Aaron Turpeau
- Julie K. Arnold
- Liane Levetan
- Robert Stephens Jr.
- Robert Reeves
- Anita Wallace Thomas
- Tad Leithead (ARC Chair)
- C. J. Bland
- Eddie L. Moore Jr.
- Rob Garcia
- Dan Post, Jr.
- Dennis W. Burnette
- Mike Houchard

Georgia Department of Community Affairs Representative

Mr. F. T. "Tread" Davis, Jr.

ARC Offices:

40 Courtland St NE
Atlanta, GA 30303
404-463-3100
404-463-3105 fax

Directions

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

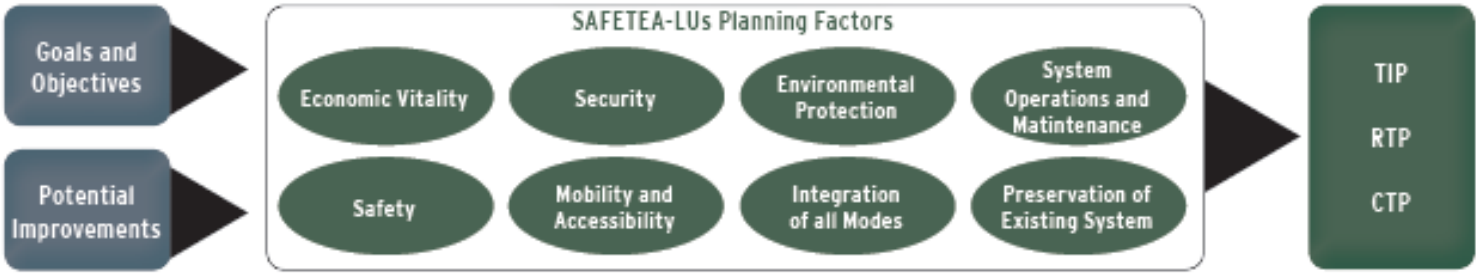
Transportation Plans & Programs

- 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)

SAFETEA – LU Planning Factors

- *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users* (SAFETEA-LU) – April 2005



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

- Data and Projections
- Geographic Information Systems
- Travel Demand Models
- Microsimulation
- Stakeholder Outreach and Involvement

Planning Documents

Local Plans:

- Comprehensive Transportation Plans (CTPs)

Regional Plans*:

- Regional Transportation Plans (RTP)
  - 30-Year Time Horizon
  - Fiscally Constrained
- Transportation Improvement Program (TIP)
  - 3 to 5 year time horizon
  - Programmed Funding

State Plans*:

- Statewide Transportation Improvement Program (TIP)
- Statewide Transportation Plan

*-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: environmental analysis, project location, design, right-of-way acquisition 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 forward to construction, the Federal agencies require compliance with more than 40 laws related to safety and the environment.

Funding Transportation Projects

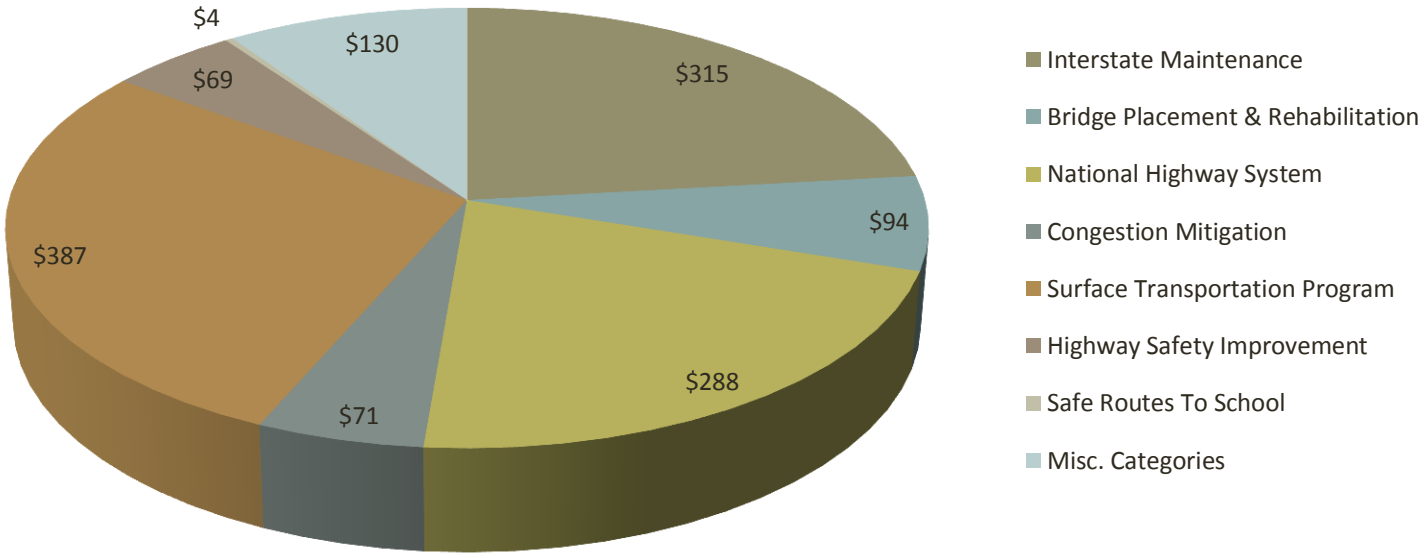
- States and MPOs must identify project funds that will be readily available over the three-to-five-year life of the Transportation improvement Program (TIP).

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

Federal Trust Fund Apportionment

Estimated Georgia Highway Apportionment, FY 2011



Source: GDOT FY2008-2011 STIP Financial Plan

Federal Trust Fund Sources

- Gasoline tax: 51%
  - 18.4 cents per gallon
- Diesel fuel: 24%
  - 24.4 cents per gallon
- Gasohol: 16%
- Fees on tires, trucks and other user charges: 9%
- General fund appropriations (sometimes)

State Transportation Funds

- Fuel tax
  - Average state tax: 20 cents
  - Georgia: 7.5 cents per gallon
  - Rhode Island: 30 cents per gallon
- Tolls
  - Delaware's major source (over 50%)
- General fund appropriations
- Bond issue proceedings

Georgia Funding Sources

- Motor fuel tax (third lowest in nation)
  - 7.5 cent/gallon since 1971
  - 4% sales tax added in 1979, 3% goes to GDOT, 1% general fund
- License fees
- Title registration fees
- Tag fees
- Motor carrier tax
- Personal property tax

**85% subject to congressional balancing

Local Transportation Funds

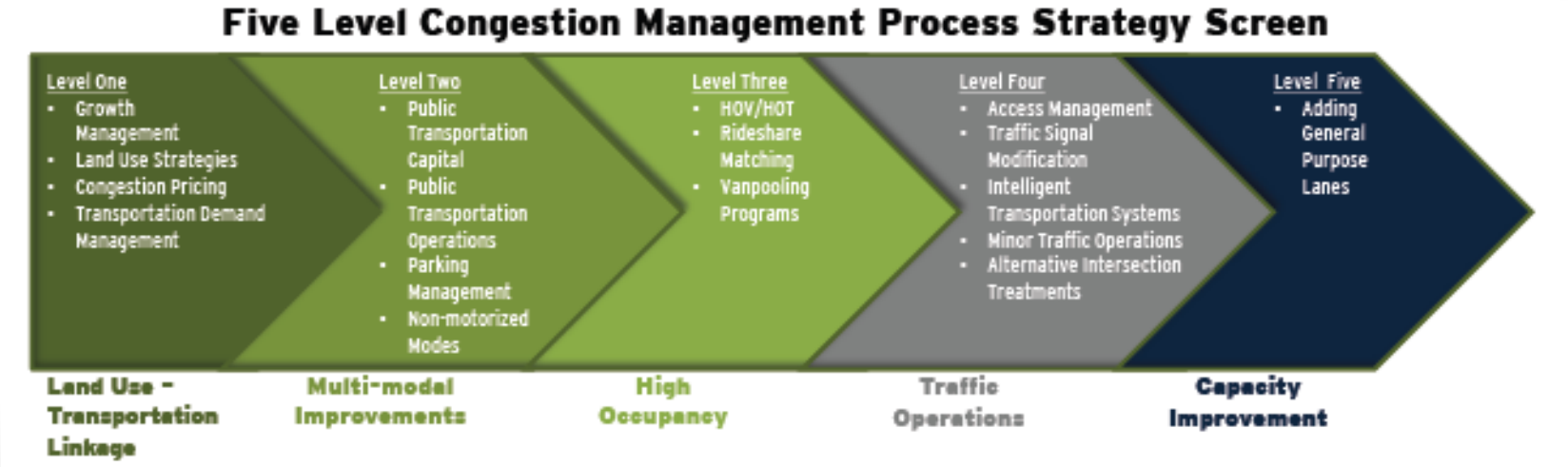
- General fund appropriations
  - About 1/2
- Property tax
  - About 1/6
- The remaining 1/3
  - Bond issue proceeds
  - Investment income
  - Fees/user fees
  - Locally enacted retail sales taxes (SPLOST)
  - Tolls
  - Benefit assessment districts, i.e. CIDs

Transit Financing

- Federal level
  - Mass Transit Account of the Highway Trust Fund
  - 2.86 cents of 18.4 cent-per-gallon tax
- State level
  - 10 states do not use gas tax for transit
  - 19 state spend less than 1 percent on transit
  - 4 states spend between 15 and 25% of their gas tax on transit
- Local level
  - Sales taxes, property tax, general revenue, advertising, and fares

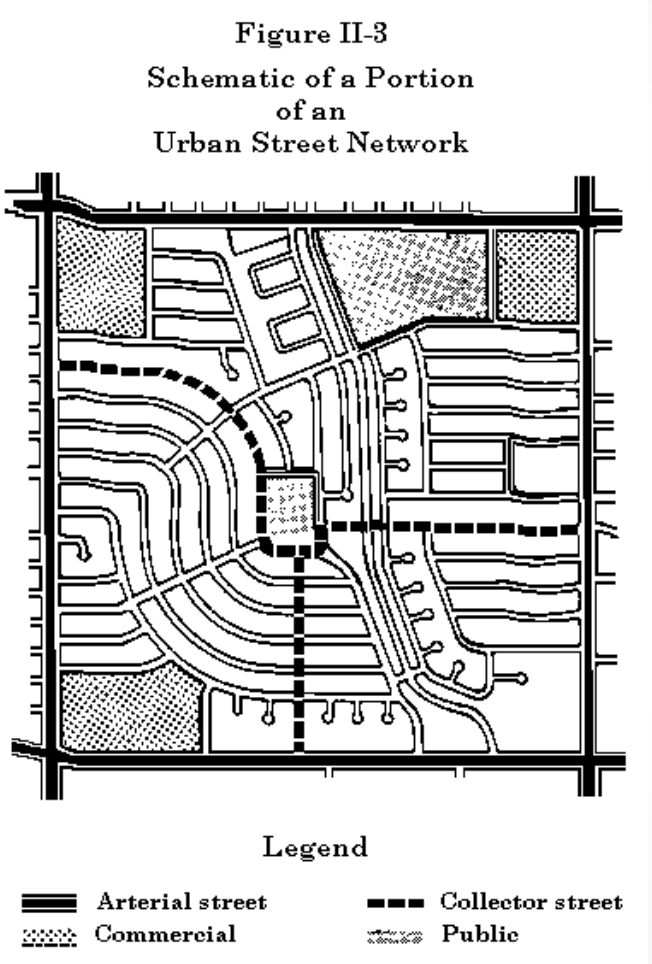
Identifying Transportation Solutions

- Considerations:
  - Future Demand
  - Safety
  - Roadway Operations
  - Preservation
  - Link to Land use



Functional Classification

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

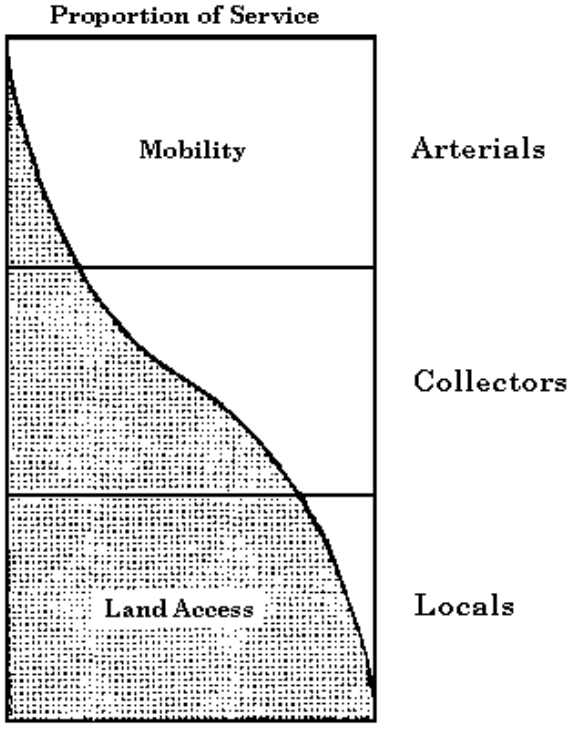


Source: FHWA

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

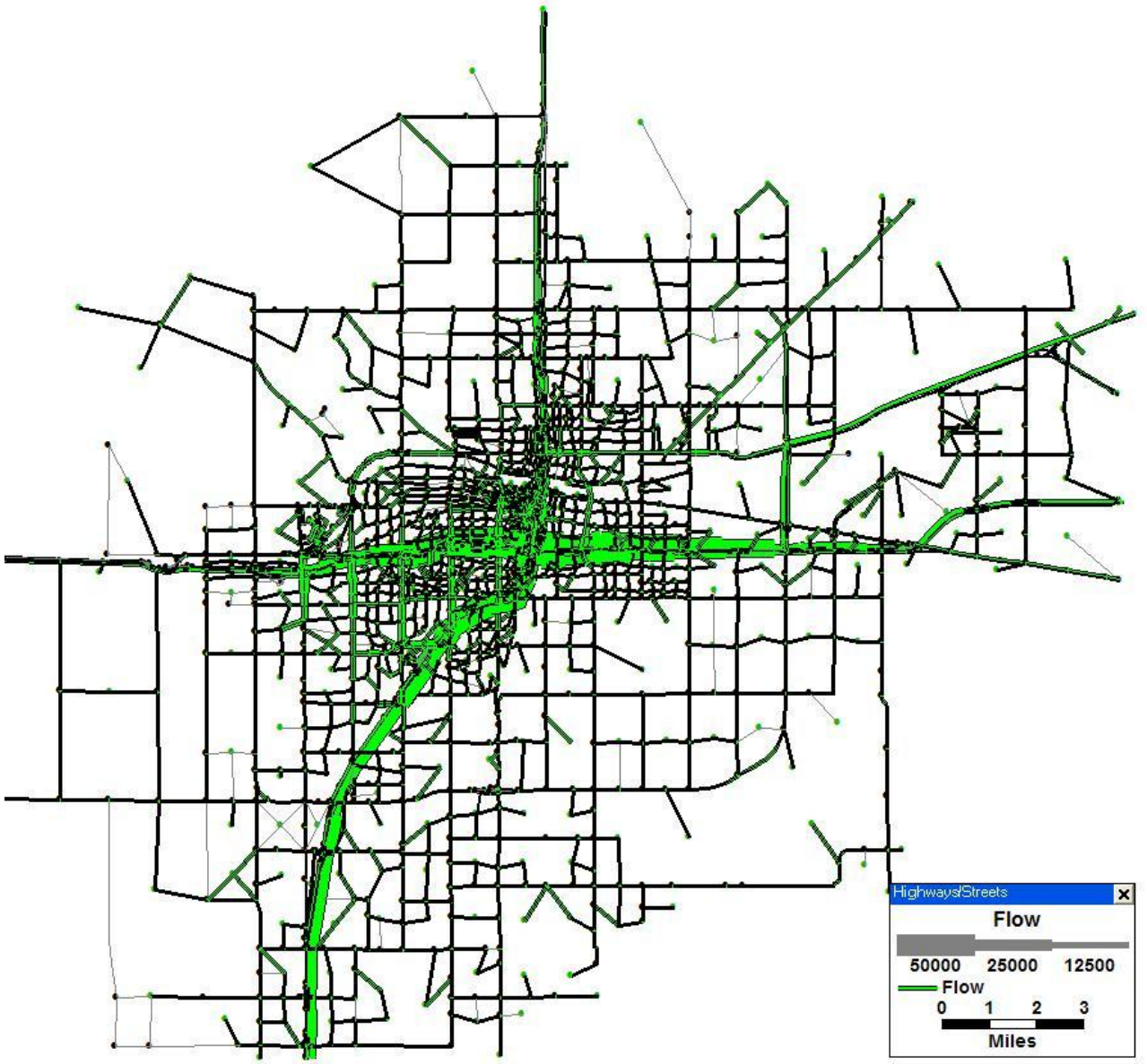
Travel Forecasting Process

- 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: Four Step Model
  - Considers trip types:
    - Home Based Work
    - Home Based Other
    - Non Home Based

Travel Demand Forecasting – Four Step Model

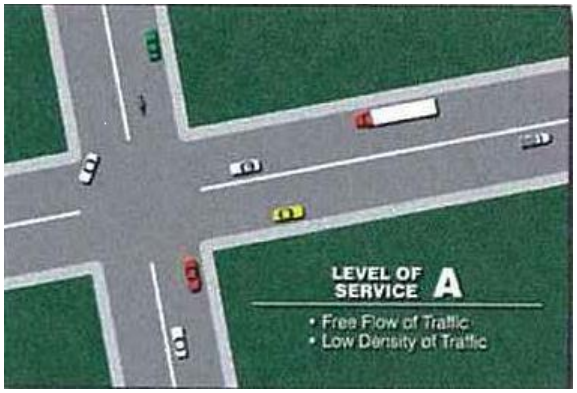
- **Trip generation** - estimates the number of trips generated by different types of land use
- **Trip distribution** - estimates where the generated trips will go
- **Mode split** - estimates which trips will use transit and which will use auto
- **Trip assignment** - assigns trips by each mode to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

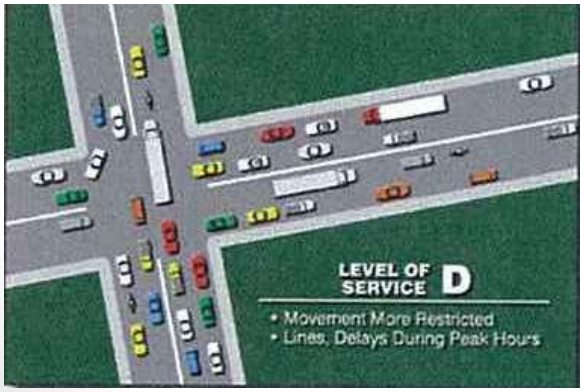
Sample Model Output

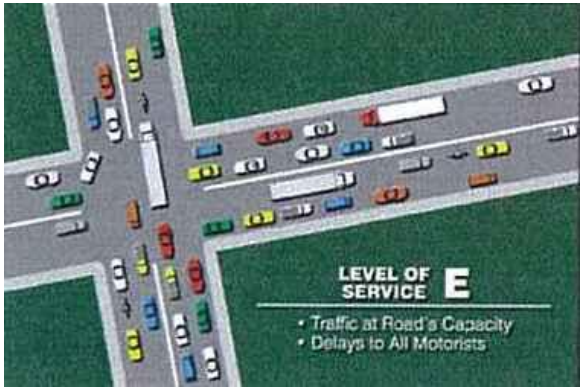


Capacity Analysis

- 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







Traffic Impact Analysis

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

- Large communities in particular will need to determine appropriate mixes of transportation modes, including public transit options

Parking Generation Factors

Generator	Peak Space Factor
Shopping Center >600,000 sq. ft.	1.0-5.0 spaces per 1,000 square feet GLA
Shopping Center <600,000 sq. ft	1.0-4.0 spaces per 1,000 square feet GLA
Office	0.5-3.0 spaces per 1,000 square feet GLA
Office	0.1-.75 spaces per employee
Medical Center	.75-4.5 spaces per bed
Medical Center	.10 - .75 spaces per employee
Industrial	.67-3.5 spaces per 1,000 square feet GLA
Industrial	.36-1.6 spaces per employee
University/College	.10-.50 spaces per student
University/College	.80 spaces per staff person
Cinema	10-85 spaces per screen
Hotel	.20-1.5 spaces per room
Restaurant	5-25 spaces per 1,000 square feet GLA
Residential	.20-2.0 spaces per unit

- Source: ITE, Parking Generation 2nd edition

Trip Generation Rates

Land Use	Base Unit	Rates		
		AM Peak	ADT	ADT Range
Residential				
Single Family Home	per dwelling unit	.75	9.55	4.31-21.85
Apartment Building	per dwelling unit	.41	6.63	2.00-11.81
Condo/TownHome	per dwelling unit	.44	10.71	1.83-11.79
Retirement Community	per dwelling unit	.29	5.86	
Mobile Home Park	per dwelling unit	.43	4.81	2.29-10.42
Recreational Home	per dwelling unit	.30	3.16	3.00-3.24
Retail				
Shopping Center	per 1,000 GLA	1.03	42.92	12.5-270.8
Discount Club	per 1,000 GFA	65	41.8	25.4-78.02
Restaurant (High-turnover)	per 1,000 GFA	9.27	130.34	73.5-246.0
Convenience Mart w/ Gas Pumps	per 1,000 GFA		845.60	578.52-1084.72
Convenience Market (24-hour)	per 1,000 GFA	65.3	737.99	330.0-1438.0
Specialty Retail	per 1,000 GFA	6.41	40.67	21.3-50.9
Office				
Business Park	per employee	.45	4.04	3.25-8.19
General Office Bldg	per employee	.48	3.32	1.59-7.28
R & D Center	per employee	.43	2.77	.96-10.63
Medical-Dental	per 1,000 GFA	3.6	36.13	23.16-50.51
Industrial				
Industrial Park	per employee	.43	3.34	1.24-8.8
Manufacturing	per employee	.39	2.10	.60-6.66
Warehousing	1,000 GFA	.55	3.89	1.47-15.71
Other				
Service Station	per pump	12.8	168.56	73.0-306.0
City Park	per acre	1.59	NA	NA
County Park	per acre	.52	2.28	17-53.4
State Park	per acre	.02	.61	.10-2.94
Movie Theatre w/Matinee	per movie screen Saturday	89.48 (PM Peak)	529.47	143.5-171.5
Day Care Center	per 1,000 GFA	13.5	79.26	57.17-126.07

Source: Institute of Transportation Engineers (ITE). Trip Generation.

Balancing development impacts

- Consider trip generation and parking impacts on the transportation system
- Approaches to minimizing impacts:
  - High density
    - Making low-mobility options possible, at least for transit trips
  - Mixed use
    - Internal site trips
  - Urban design promoting non-motorized transportation
    - Streetscape, building facade
    - Bus stop and rail station design

Resources

- Atlanta Regional Commission
  www.atlantaregional.com

- Federal Highway Administration
  www.fhwa.dot.gov/planning

QUESTIONS?