COLUMBIA UNIVERSITY

GRADUATE SCHOOL OF ARCHITECTURE, PLANNING AND PRESERVATION

INTRODUCTION TO TRANSPORTATION PLANNING – PLA6434

FALL 2013 : THURSDAYS, 2:00–4:00 p.m.

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Dr. Lapp has almost 50 years of planning, development and transportation experience including 40 years as an adjunct academician at 15 colleges and universities: 18 semesters at Columbia since 2003. In the past 20+ years, he has been Executive Director, South Western Regional Planning Agency (since September, 2006), Principal Planner, Sam Schwartz LLC (2001-2005) and Transportation Director, New York City Department of City Planning (1991-2000).

He is a Fellow of the American Institute of Certified Planners, a charter member of the American Planning Association and a licensed professional planner in New Jersey.

COURSE DESCRIPTION AND ORGANIZATION

Transportation, or the lack thereof, directly influences the development of the built environment. The current and future challenge of the land use/transportation connection is to redial the last 65 or so years of primarily promoting highways, automobiles and low density spread, suburban development. In the last 10-15 years, more sustainable, transit oriented development (TOD) is starting to emerge. However, this will take much more time before the retrofitting of our metropolitan areas are achieved.

An introduction and overview of transportation modes, the characteristics of transportation planning policies and procedures will be provided with their affect on the location, economic development of urban places and the related land use patterns. The growing dilemma in moving goods and freight will be introduced as both components continue to increase their share of overall trips. The role of the environmental impact statement and the increasing interest in environmental justice will be discussed. The governance of transportation as it has evolved for more than half a century with the federal mandated metropolitan transportation planning organization (MPO) will also be evaluated.

The trip generating characteristics of various land uses will be discussed including their quantity, type, temporal differences and how they are accommodated by the various modes. The component analyses, techniques and methodologies such as: trip generation, modal splits, traffic assignments, volume/capacity concepts and parking standards will be presented.

The course is divided among a series of modules:

- Where Have We Been?: The History and Theory of Transportation
- Highways: From Personal Usage to Managed Lanes
- The Rise and Fall and Rise Again of Transit
- Back to the Future: Promoting Walking, Cycling, High Speed Rail and High Speed Ferries
- Goods and Freight Movement Growth

- Transportation Methods and Analysis
- Transportation Finance and Parking
- Transportation Governance and Regional Planning
- Where Are We Going?: The Long Range Plan

Due to the time constraints of an introductory class and the breadth of information, the focus will be on the U.S. but transportation topics and issues in other countries are welcomed and encouraged in class and with the assignments.

Throughout the course, the need for multi-modal approaches, the more efficient use of private vehicles on highways, the greater use of transit and more walkable/cycleable modes will be stressed in an environment of more compact development.

COURSE REQUIREMENTS

- Prompt arrival, regular attendance, preparation and participation for class discussions (10%) as part of the weekly meetings.

- A term paper on a transportation issue or a critical analysis of a specific transportation project. The paper should be up to 10 double-spaced pages or approximately 2,500 words. Selection of a topic not later than Session 3, Sept. 19th so it is truly a term paper. Paper due on Nov. 14th and a 5-10 minute presentation will enable you to develop your written and presentation skills (20%) at the last class meeting, December 19th. The attachment has details on potential topics.

- Midterm (due on Oct. 17th) and Final Examination (due on Dec. 12th) based on the lectures and readings (35% each). Questions will be provided one week in advance of the due date for each take home exam.

For any assignment submitted late, a full grade per day will be deducted up to two days or 48 hours after the due date. After that time, the grade becomes an "F". The delivery of timely products is part of being a professional.

Plagiarism: Plagiarism is presentation of another person's words, phrases, ideas, or conclusions as your own. Ethically, plagiarism is false assumption of authorship: the act of taking another person's language or thought and presenting it as your own. Plagiarism may take the form of repeating another person's sentences or phrases as your own, presenting another person's argument as your own, letting another person write your paper, or purchasing a paper for submission under your own name. These are all plagiarism whether they are done intentionally or unintentionally.

The means to prevent plagiarism in essays are: quotation marks around passages taken verbatim from sources; names of sources cited frequently in paraphrases or summaries; and complete documentation of sources in the text of essays and in footnote, endnotes, or lists of "works cited".

REQUIRED TEXT

- Hanson, Susan and Guiliano, Genevieve (eds.).*The Geography of Transportation*. New York City : The Guilford Press, 2004. H and G

- Course pack is available from, Village Copier, 2872 Broadway/112th Street. The readings are shown with a title in bold and caps for most sessions.

All other readings shown below are optional but encouraged as your interest in the subject further matures.

Reading Discussion Group will be led by the teaching assistant every other week between September 19th – November, before Thanksgiving, 5:00-5:45 p.m. by or in Fayweather 201. You will be expected to participate unless you have a work or academic related conflict, and advise me of such.

SCHEDULE OF CLASSES

Sessions 1-2

9-5, 9-12

WHERE HAVE WE BEEN: HIGHLIGHTING THE HISTORY AND THEORY OF TRANSPORTATION

Historical evolution of transportation planning and policy modes, levels of density, modal choice and transit oriented development.

The auto-centric metropolis and the need to tame the car.
The rise and fall and rise again of transit.
The need for multi-modal approaches and integrated transportation planning.
The hierarchy of transportation modes.

H and G, Ch.1, 3,

INTRODUCTION, F-1 to F-8

Of note, Campoli and MacLean, *Visualizing Density*, Lincoln Institute of Land Policy, 2007.

For the New York Metropolitan Area the following landmark material describes the urban/ suburban form of NYC and the surrounding metropolis and the transportation that has shaped it during the past century:

Caro, Robert A. *The Power Broker : Robert Moses and the Fall Of New York*. New York: Vantage Books, 1974 Chapter 18, New York City Before Robert Moses and Chapter 28, The Warp on the Loom; and the revisionist text , Ballon, Hilary and Jackson, Kenneth T. *Robert Moses and the Modern City: The Transformation of New York* : W.W. Norton and Company, 2007.

Doig Jameson W. *Empire on the Hudson: Entreprenurial Vision and Political Power at the Port of New York Authority*. New York: Columbia University Press, 2001.

Derrick, Peter. *Tunneling to the Future: The Story of the Great Subway Expansion That Saved New York. New York :* New York University Press, 2001.

Jacobs, Jane. *The Death and Life of Great American Cities*. New York: Vintage Books, 1963; chapter 18: Erosion of Cities or Attrition of Automobiles. *Reconsidering Jane Jacobs*, ed. Max Page and Timothy Mennel, APA, Planners Press, 2011. Reflections on Jacobs' book 50 years after its publication.

Session 3

9-19

HIGHWAYS: FROM PERSONAL USAGE TO MANAGED LANES, Pp. 9-96

From Single Occupancy Vehicles to Managed Lanes:

- Car Pooling
- Transportation Demand Management (TDM)
- Transportation Systems Management (TSM)
- ITS Initiatives
- HOV
- HOT
- Congestion Pricing
- Pricing Vehicle Miles Traveled (VMT)

Maximizing Highway Use : The Port Authority's exclusive bus lane into the Manhattan bus terminal, and NYSDOT's Long Island Expressway HOV.

Handy, Susan, Robert G. Paterson, and Kent Baker. *Planning for Street Connectivity Getting from Here to There*, APA Planning Advisory Report #515, 2003.

H and G, Ch. 14

TRANSIT ORIENTED DEVELOPMENT, Pp. 97-110

Session 4

9-26

THE RISE AND FALL AND RISE AGAIN OF TRANSIT

Transit Systems and Options

- Perceptions of Public Transit
- Bus vs. Rail
- Emerging Options: BRT, LRT, High Speed Rail
- Transit Oriented Developments (TOD's)

H and G, Ch. 2,8

TRANSIT'S HISTORICAL PERSPECTIVE, Pp. 111-118

Of note,

Cervero, Robert. *The Transit Metropolis: A Global Inquiry*, 1998.

Vuchic, Vukan. *Urban Transit: Operation, Planning and Economics*, 2005.

Session 5

10-3

INTERCITY TRANSIT, Pp. 119-144

- Commuter Rail

Amtrak
High Speed Rail vs. Airport Access and Use of the Airplane
Attempts to link metro areas, mega metros and polycentric cities.
High Speed Ferry

Session 6

10-10

BACK TO THE FUTURE: PROMOTING WALKING AND CYCLING AND OTHER ALTERNATIVE MODES, Pp. 145-214

Traffic calming
Retrofitting urban streets to promote multi- modalism
Complete Streets and "Naked" Streets

Of note,

Speck, Jeff, *Walkable City : How Downtown Can Save America, One Step at a Time*, 2012.

Pushkarev, Boris S. and Jeffery Zupan. *Urban Space for Pedestrians*. Cambridge: MIT Press, 1975.

Rosales, Jennifer, *Road Diet Handbook : Setting Trends for Livable Streets*, 2nd edition, Parsons Brinkerhoff Inc.

Greenwich-Stamford Route 1 Corridor Study and Darien Route 1 Corridor Study, www.SWRPA.org.

Duany Plater-Zyberk and Company. *Lexicon of the New Urbanism*, 1998.

Session 7

10-17

GOODS AND FREIGHT MOVEMENT

Trucks and the Interstate Highway System
Rail Freight
Waterborne and Container Ports
Air Cargo

Exam 1 due in class

Hand G, review Ch.2

Session 8

10-24

TRANSPORTATION METHODS AND ANALYSIS, Pp. 215-240

Measuring Transportation System Performance
Trip generation, distribution, assignment and modal split.
Level of service (LOS) analysis.

H and G, Ch. 9-10

Mitchell, Robert B. and Rapkin, Chester, *Urban Traffic: A Function of Land Use*, 1954 –available in Avery Library.

URBAN TRANSPORTATION PLANNING PERFORMANCE STUDIES, Pp. 241-246

Sessions 9 and 10

10-31, 11-7

EVALUATING TRANSPORTATION PROJECTS AND INVESTMENTS

Cost –Benefit Analysis
Alternatives Analysis
Environment Impact Statements (EIS)

Case Studies:

- Rail to Airport Access
- Eastside Access at Grand Central Terminal
- Second Passenger Rail Tunnel Between New Jersey and New York, Penn Station Vicinity
- Dedicated Rail Freight Tunnel Between New Jersey and New York

H and G, Ch. 4-7.

Session 11

11-14

ENVIRONMENTAL JUSTICE, EQUITY ISSUES AND PLANNING FOR VULNERABLE POPULATIONS

Pluralism of Plans

H and G, Ch 12-13.

Of note,

Robert D. Bullard, Glenn S. Johnson, Angel O. Torres, *Highway Robbery: Transportation Racism and New Routes to Equity*

ENVIRONMENTAL JUSTICE, Pp. 247-264

Session 12

11-21

TRANSPORTATION FINANCE : SHOW ME THE MONEY

Gas tax, alternatives to the user tax
Federal legislation ,the last 20 years and the next 50 years
Transit impact fees (TIFs)
Design build operate maintain (DBOM)
Congestion pricing

Privatization/Naming Rights
Parking fees
Other options

H and G, Ch.11.

FINANCE – SHOW ME THE MONEY AND PARKING, Pp. 265-346

Term paper due in class

11-28, NO CLASS, THANKSGIVING

Session 13

12-5

TRANSPORTATION GOVERNANCE AND REGIONAL PLANNING: WHERE ARE WE GOING? THE AMERICAN 2050 STRATEGY AND INNOVATION, Pp. 347-410

Of note,

Vuchic, Vukan R. *Transportation for Livable Cities*, 1999.

Montgomery, Carleton K (ed.): *Regional Planning for a Sustainable America*, Rutgers University Press, 2011.

Altshuler, A.W. Morrell, H. Wolman, and F. Mitchell, eds., *Governance and Opportunity in Metropolitan America*, National Academy Press, 1999.

America 2050, Regional Plan Association.

12-12 Exam 2 due in class.

Session 14

THE LAST STOP…

Term paper up to 10 minute presentations.

Grades due 12-18

For first year students, you will need to fulfill a studio requirement in Spring, 2014. I will be leading a transportation/land development studio. Past studios I have led include: Tappan Zee Bridge (2005), Sheridan Expressway, The Bronx (2007); East Main Street, Stamford (2008); Roosevelt Island, Manhattan (2009),Yonkers Waterfront ,Transportation Impact (2010)*, After ARC (2012). Details will follow this fall.*

**Two of the six above mentioned studios were voted best studio/most representative of Columbia*

TERM PAPER

The topic should be a transportation issue or a critical analysis of a specific transportation project; approximately 10 double spaced pages or 2,500 words. **Briefly describe the issue or project you select but spend most of your paper giving your views of the issue or project, including your thoughts or any alternatives , if appropriate. The paper should not be a mere inventory but much more a think piece.** Selection of a topic not later than session 3 via a one sentence e-mail request (first come first served so sooner is better than later) and the paper is due at session 12. This assignment is 20% of the final grade. Potential topics include the following or one of your choosing with my approval:

ISSUES

Use of the authority mechanism to build bridges, tunnels and highways in the N.Y.-N.J.– region from the 1920's –1960's.

The limited track record of the Metropolitan Transportation Authority in building new extensions or expansions of rail infrastructure in the past 45 years.

The Metropolitan Transportation Authority's five year capital program.

Accomplishments of NYC or a city of your choice in reducing pedestrian/vehicular conflicts.

Accomplishments of NYC or a city of your choice in promoting cycling .

Promoting congestion or value pricing in NYC and the surrounding region such as Connecticut or in London, Singapore or in a city/region of your choice.

Promoting traffic calming in NYC or a city of your choice.

Case study promoting high occupancy vehicle (HOV) lanes.

Case study promoting high occupancy toll (HOT) lanes.

Promoting intelligent transportation systems (ITS).

Applying transportation systems management (TSM) to a specific place.

Applying transportation demand management (TDM) to a specific place.

Promoting smart growth by introducing transit supporting densities, walking and cycling to a specific place.

Promoting light rail transit to a specific place.

Promoting bus rapid transit to a specific place.

CRITICAL ANALYSIS OF A PROJECT SUCH AS:

Second Avenue subway.

Eastside Terminal at Grand Central.

Extension of the #7 subway line.

Second passenger rail tunnel under the Hudson River between NYC and N.J.

Secaucus Transfer.

Metro North to Penn Station.

42nd Street light rail.

New Jersey Transit's Transit Oriented Development Program.

Connecticut's Transit Oriented Development Program.

Twinning the Goethals Bridge.

Upgrading the Gowanus Expressway.

Upgrading the Danbury branch rail line in Connecticut.

Upgrading the New Canaan branch rail line in Connecticut.

Upgrading the Waterbury branch rail line in Connecticut.

New transit links for Lower Manhattan.

Rebuilding the Tappan Zee Bridge.

Rail freight tunnel between New Jersey and South Brooklyn.

Bergen –Hudson light rail.

Trenton-Camden light rail.

The role of Philadelphia's street cars.

Expanding high speed ferry service in the N.Y.-N.J. area.

Boston's "Big Dig ."

Bruckner-Sheridan Interchange Project. or,

A project of your choosing.