

PLA 6434 – Introduction to Transportation Planning

Fall 2017, Tuesdays, 3:00 – 5:00 pm Buell Hall 300 South
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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 post World War II years of primarily promoting highways, automobiles and low density spread, suburban development. In the last 20 years, more sustainable, compact transit oriented development (TOD) and smart growth is emerging. In the last decade vehicle miles traveled has declined. However, these trends will take much more time before the retrofitting of our metropolitan areas are achieved with more dense, compact development and transit growth occurs.

This course provides an introduction and overview of transportation modes, the characteristics of transportation planning policies and procedures and their affect on the location, economic development of urban places and 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 environmental impact statements and environmental justice will be discussed as part of the governance of transportation as it has evolved for 55 years with metropolitan transportation planning organizations (MPO's) and related regional transit agencies. The disconnect between regional planning and transportation will be examined.

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 Use to Managed Lanes and the Potential of For Hire and Autonomous Vehicles
- The Rise, Fall and Rise Again of Transit and the Critical Role of Bus Rapid Transit (BRT), Light Rail Transit (LRT) and Streetcars.
- Back to the Future: Promoting Walking, Cycling, High Speed Rail and High Speed Ferries.
- Transportation Methods and Analysis.
- Transportation Finance.
- Transportation Governance and Regional Planning.
- Where Are We Going?:

Due to the time constraints of an introductory class, we only meet once a week for two hours, and the breadth of information, the focus will be on the U.S. but transportation topics and issues in other countries are welcomed, in class and with the assignments, including the term papers, which are presented in class for group discussion.

It is up to you on how far to explore the subject of transportation planning. You can limit yourself to merely the readings in the Coursepack and the required text or you can move beyond the bookends. For example, in the introduction sessions: the Caro, Doig, Derrick, Jacobs and Koepfel texts provide the historical background for the subject in NYC and environs; Section 6 includes a well known golden oldie by Pushkarov and Zupan and a relative newbie with Speck's, *Walkable City*; Section 8 directs you to the Avery Library for the pathfinder classic by Mitchell and Rapkin and Section 11, *Highway Robbery*, provides a collection of equity case studies and the issues of environmental justice. Not listed but very worthy texts of note are: Grava's *Urban Transportation Systems*, which uniquely reviews the various modes; Downs' *Still Stuck In Traffic* and Walker's *Human Transit*.

Throughout the course focus is placed on the need for multi-modal approaches, the more efficient use of private vehicles on highways using the managed lanes concept, the emergence of for hire and autonomous vehicle options, the greater use of transit and more walking/cycling modes in promoting compact development and “complete streets.”

About the Professor

Dr. Lapp has 50 + years of planning, development and transportation experience including 45 years as an adjunct academician at 15 colleges and universities; 24 semesters at Columbia since 2003. In the past 25 years he has been an on call consultant, Executive Director, South Western Regional Planning Agency (2006-2014); Principal Planner, Sam Schwartz LLC(2001-2005); and New York City Department of City Planning Transportation Director (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.

Related to metropolitan and regional planning, Dr.Lapp was affiliated with the Westchester *County* Department of Planning, New Jersey *State and Regional Planning Division*, *Tri-State Regional Planning* Commission and the South Western *Regional Planning Agency*/Western Connecticut Council of Governments, which is also a metropolitan planning agency, focused on transportation planning.

Course Requirements

1.Prompt arrival, regular attendance, preparation and participation for class discussions (10%) as part of the weekly meetings. Attendance and arrival time will be monitored to ensure your participation.

2.A term paper on a transportation issue or a critical analysis of a specific transportation project to further develop your writing and research skills. The paper should be up to 10 double-spaced pages or approximately 2,500 words. Selection of a topic not later than,preferably before Session 3, Sept.19 so it is truly a term paper. Paper due on Nov.21 and a 10 minute presentation will enable you to develop your presentation skills (20%) at the last class meeting, December 5 . Pages 7 - 9 has details on potential topics or you may advance a topic of your own choosing via an e-mail and subject to my approval.

3.and4.Midterm (due on Oct.17) and Final Examination (due on Dec.5) 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/48 hours after the due date; then the grade becomes an “F” because timely delivery of assignments is part of being a professional.

Plagiarism, the presentation of another person's words, ideas or conclusions as your own is unethical! It may take the form of repeating another person's language or thought and presenting it as your own. The means of preventing plagiarism are : quotation marks around passages taken verbatim from other sources; names of sources cited frequently in paraphrases or summaries; and complete documentation of sources in the text of essays and in footnotes, end notes or lists of works cited.

Required Texts

CoursePack,(CP),in two volumes, is available from Village Copier, 1181 Amsterdam Ave @ 118 St. The readings are shown in this syllabus with a title **in bold** and caps for most sessions.

John C. Falcocchio and Herbert Levinson,*Road Traffic Congestion:A Concise Guide*, Springer International Publishing,2015(See “RTC”for assignments in the syllabus,also shown **in bold**) is the required text.

All other readings shown below are optional but are encouraged as your interest in the subject further matures. All aboard and enjoy the journey!

Schedule of Classes

9-5, 9-12,,9-19:

Where Have We Been: Highlighting the History and Theory of Transportation,

CP pp. 1-8; RTC,pp.3-68.

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.

Introduction

Of note, Campoli and MacLean, *Visualizing Density*, Lincoln Institute of Land Policy, 2007. Edward Weiner, Urban Transportation Planning in the U.S. 4th edition, 2013.

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 :

Caro, Robert A. *The Power Broker*: 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: Entrepreneurial Vision and Political Power at the Port of New York Authority*. New York: Columbia University Press, 2001.

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

Jacobs, Jane. *The Death and Life, 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; *Vital Little Plans: The Short Works of Jane Jacobs*. Edited by Samuel Zipp and Nathan Storring , Random House, 2016.

Koeppel, Gerard. *City on a Grid*. Boston: DaCapo Press, 2015.

9-19

Highways: From Personal Usage to Managed Lanes, **CP, pp. 9-177F; RTC, pp. 71-180.**

Single Occupancy Vehicles to Managed Lanes: Car Pooling

Transportation Demand Management Transportation

Systems Management

ITS Initiatives

HOV

HOT

Congestion Pricing, **RTC, pp. 285-305.**

Pricing, Vehicle Miles Traveled (VMI)

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

9-26, 10-3 Transit Oriented Development, Transit Perspectives and Choices

The Rise and Fall and Rise Again of Transit, **CP, pp. 177-254C**

Transit Systems and Options

Perceptions of Public Transit Bus vs. Rail

Emerging Options: BRT, LRT, Streetcars, High Speed Rail and Ferries

Transit's Historical Perspective, CP 255-398 (end of Vol.1 of CP)

Of note,

Calthorpe, Peter. *The Next American Metropolis*, 1993.

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

Urban Transit: Operations, Planning, Economics, 2005.

Transit Choices

Commuter Rail, Light Rail, Bus Rapid Transit, Subway, 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 Services.

Kasard, John D. and Lindsay, Greg, *Aerotropolis: The Way We'll Live Next*, 2011.

Bloom, Nicholas D, *The Metropolitan Airport: JFK International and Modern New York*, 2015.

10-10

Back to the Future: Promoting Walking and Cycling and Other Alternative Modes, CP399-461.

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., 2007.

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

10-17

Goods and Freight Movement, RTC, pp.387-401.

Trucks and the Interstate Highway System Rail Freight

Waterborne, Container Ports and Air Cargo

Exam 1: Due in Class

10-24, 10-31

Transportation Methods and Analysis. CP463-624

Measuring Transportation System Performance

Trip generation, distribution, assignment and modal split.

Level of service (LOS) analysis.

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

11-7

Evaluating Transportation Projects and Investments



Graduate School of Architecture, Planning and Preservation

Cost-Benefit Analysis Alternatives Analysis

Environmental 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

Second Avenue Subway

11-14

Environmental Justice, Equity Issues and Planning for Vulnerable Populations, CP625-650.

Of note,

Robert D. Bullard, Glenn S. Johnson, Angel O. Torres, *Highway Robbery: Transportation Racism and New Routes to Equity*, 2004

11-21, Term Paper Due in Class

Transportation Finance: Show Me The Money/Parking, 651-743.

Gas tax, alternatives to the user tax

Federal legislation, the last 20 years and the future

Transit impact fees (TIFs)

Design build operate maintain (DBOM) and variations on this theme.

Congestion pricing

Privatization/ Naming Rights

Parking fees

P3, public-private partnerships

Other options

11-28

Transportation Governance and Regional Planning: Where Are We Going, The American 2050 Strategy and Innovation, CP 745-788.

Of note,

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

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

Scar, Lonnoth and Wolmar, *Urban Access for the 21st Century: Finance and Governance Models for Transport Infrastructure*, 2014.

America 2050, Regional Plan Association.

12-5

The Last Stop . . . Exam 2 Due in Class

Student Term Paper Presentations

For first year students, you will need to fulfill a studio requirement in Spring, 2018. transportation. The nine 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); Tappan Zee Bridge: Bus Rapid Transit Network (2014), Nyack-Tarrytown-NYCFerry Service (2016);* and Improving JFK Ground Access and Adapting to Climate Change at LaGuardia and Teterboro Airports (2017).

** Three of the nine 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, 9-19, via a one sentence e-mail** (first come first served so sooner is better than later) and the paper is due at the session on 11-21. 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 half century.

The Metropolitan Transportation Authority's five year capital program: historical evolution since the 1980's or current 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.

Metro North to Penn Station .

42nd Street light rail.

Proposed rail access to LaGuardia Airport

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.

Adding a fourth lane to the Van Wyck Expressway.

Adding a fourth lane to I-95 in Connecticut.

Adding a new rail tunnel between Penn Station -Newark,NJ

.New transit links for Lower Manhattan.

Rebuilding the Sheridan Expressway as a Boulevard :Merits and Demerits

Rebuilding the Tappan Zee Bridge:Merits and Demerits

Rail freight tunnel between New Jersey and South Brooklyn.

Bergen -Hudson light rail.

Trenton-Camden light rail.

The role of Philadelphia's streetcars.

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

Boston's Big Dig.

NYC EDC's Ferry program.

MTA's Lower Hudson Valley Ferry Program;

Rockland-Westchester County MTA/SDOT bus links program.

Bruckner-Sheridan Interchange Project.

White Plains,N.Y. Proposed Transit District Development.

Atlanta's Proposed 22 mile "Beltline;" or,

A project of your choosing but avoid a familiar project especially from your home town to provide a new learning experience.