

TRANSPORTATION and LAND USE (970:554)

E.J. Bloustein School of Planning and Public Policy,
Rutgers University

Fall 2011

Wednesdays, 1:10pm to 3:50pm
rm 261 Civic Square Building

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Course objective

This course will cover the basic controversies and issues associated with transportation, land use, and development practices. The objective is to provide an understanding of debates over these topics and provide students with sufficient knowledge and understanding to understand the consequences and relationships between transportation and various forms of land use development. The course will provide a theoretical grounding on the issues, based on economic theory and academic studies examining travel impacts. Various practical tools and methods will be presented for estimating trip generation and for evaluating land use impacts, providing students with a survey of practical applications. A major focus of the course will be on parking, which is one of the main land use impacts of personal motorized transportation.

Required Books

Donald Shoup, *The High Cost of Free Parking*, American Planning Association: Chicago, 2005.

\$41.45 from Amazon.com

\$62.95 (\$52.95 for APA members) from <http://www.planning.org/apastore/default.aspx>

There is a new revised version, dated 2011, that is in paperback and is cheaper. That is okay to get also.

All other reading materials will be available on Sakai.

Assignments and Grading

There will be three assignments: trip generation analysis, MXD model analysis, and Urbansim. These will make up 15% of your grade:

- Trip generation: 5%
- MXD model: 5%

- Urbansim: 5%

The course will be largely run as a discussion course. Various papers will be discussed in class and you are expected to contribute to those discussions. The presentation of the book, *The High Cost of Free Parking*, will be done by all students, most likely working in groups of 2 (depending on class size).

- Parking presentation: 15%
- Discussion papers: 10%
- Class participation: 5%

The term project will consist of either a case study of a planning project, an analytical analysis, or a comprehensive review of an issue in transportation and land use planning. Depending on the class size, you may work in groups of 2, but more will be expected of any group projects. Presentations will be given the last 2 weeks of class. The paper will make up 40% of your total grade.

- Final project, written component: 30%
- Final project, presentation: 5%

There will be one **take-home midterm examination**. You will have 21 hours to complete the examination and will be expected to work independently.

- Take-home midterm: 20%

There will be no final examination.

Course outline

Week 1: Wednesday, 9/7/11

Course Overview: Introduction, Norms and values

Readings

- Hanson, Susan. 2004. The context of urban travel: Concepts and recent trends. In *The geography of urban transportation*, 3rd ed., edited by S. Hanson and G. Giuliano. Chapter 1, pp. 3-28. New York: The Guilford Press.
- Giuliano, Genevieve. 1995. The weakening transportation-land use connection. *Access*, 6:3-11.
- Cervero, Robert, and John D. Landis. 1995. The transportation-land use connection still matters. *Access*, 7:2-10.
- Duany, Andres, Elizabeth Plater-Zyberk, and Jeff Speck. 2000. The American transportation mess. In *Suburban nation: The rise of sprawl and the decline of the American dream*, Chapter 5 (pp. 85-98). New York: North Point Press.
- Wilson, James Q. 1997. Cars and their enemies. *Commentary* 104 (1):17-23.
- Gordon, Peter and Harry W. Richardson, 1997, Are Compact Cities a Desirable Planning Goal?, *Journal of the American Planning Association*, 63(1): 95-106.

- Ewing, Reid, 1997, Is Los Angeles-Style Sprawl Desirable? *Journal of the American Planning Association*, 63(1): 107-126.

Week 2: Wednesday, 9/14/11

Discussion of Class Project: Overview of IRB (Dr. Marc Wiener)

Theory: How transportation affects land use

Readings

- O'Sullivan, Arthur, 1992, *Urban Economics*, 2nd edition, chapters 7, 8 and 10
- Muller, P. O. (2004) "Transportation and urban form: Stages in the spatial evolution of the American metropolis," In *The Geography of Urban Transportation*, edited by S. Hanson and G. Giuliano, New York: Guilford, pp. 59-85.
- Chatman, Daniel G. and Robert B. Noland, 2010, Do public transport investments increase agglomeration economies? A review of literature and agenda for research, working paper, *Transport Reviews (in press)*
- Graham, Daniel J., 2007, Agglomeration, Productivity, and Transport Investment, *Journal of Transport Economics and Policy*, 41(3): 317-343.
- Bowes, D.R. & Ihlanfeldt, K.R. 2001, "Identifying the Impacts of Rail Transit Stations on Residential Property Values", *Journal of Urban Economics*, 50(1): 1-25.
- Boarnet, Marlon G., and Andrew F. Haughwout. (2000) "Do highways matter? Evidence and policy implications of highways' influence on metropolitan development," *A discussion paper of the Brookings Institution*, Center on Urban and Metropolitan Policy, Washington, DC.

Week 3: Wednesday, 9/21/11

Theory: How land use affects transportation

Readings

- National Research Council, 2009, *Driving and the Built Environment: The Effects of Compact Development on Motorized Travel, Energy Use, and CO₂ Emissions*, Transportation Research Board Special Report 298.
- Cervero, Robert and Kara Kockelman, 1997, "Travel Demand and the 3D's: Density, Diversity, and Design", *Transportation Research D (Transport and Environment)*, 2(3): 199-217.
- Ewing, Reid and Robert Cervero, 2010, "Travel and the Built Environment", *Journal of the American Planning Association*, 76(3), 265-294.
- Crane, Randall, 2000, The influence of urban form on travel: An interpretive review, *Journal of Planning Literature*, 15 (1): 3-23.

- Chatman, Daniel G., 2008, Deconstructing development density: Quality, quantity and price effects on household non-work travel, *Transportation Research A*, 42: 1008-1030.
- Cao, X., Mokhtarian, P. L., and Handy, S. L. (2009). Examining the impacts of residential self-selection on travel behavior: A focus on empirical findings. *Transport Reviews*, 29 (3), 359-395.
- Chatman, Daniel G., 2009, Residential choice, the built environment, and nonwork travel: evidence using new data and methods, *Environment and Planning A*, 41: 1072-1089.

Discussion papers – Be prepared to discuss these in class!

- Ogburn, Willam F., Inventions of Local Transportation and the Patterns of Cities, *Social Forces*, 24(4): 373-379.
- Brown, Jeffrey, 2005, A Tale of Two Visions: Harland Bartholomew, Robert Moses, and the Development of the American Freeway, *Journal of Planning History*, 4(3):

Week 4: Wednesday, 9/28/11

Transit-oriented development: Policy in New Jersey

Guest lecturer: Stephanie DiPetrillo, Voorhees Transportation Center

Readings

- “Eliminating Barriers to Transit-Oriented Development”, Daniel Chatman, Ph.D., and Stephanie DiPetrillo, 81 pages. March 2010.
- “Transit Village Initiative Monitoring Report”, Jon Carnegie and Stephanie DiPetrillo, May 2009, Revised June 2009

Discussion papers – Be prepared to discuss these in class!

- Ewing, Reid and Eric Dumbaugh, 2009, The Built Environment and Traffic Safety: A Review of Empirical Evidence, *Journal of Planning Literature*, 23(4): 347-367.
- Short, John Rennie, and Luis Mauricio Pinet-Peralta, 2010, No Accident: Traffic and Pedestrians in the Modern City, *Mobilities*, 5(1): 41-59.

Project proposals: Due by email on 10/8/10

Week 5: Wednesday, 10/5/11

Traffic impact analysis (1): Trip generation in practice

Guest lecturer: Prof Stuart Meck

Readings and resources:

- Florida Transportation Impact Handbook,
<http://www.fdottransportationimpacthandbook.com/>

- Highway Capacity Manual, Transportation Research Board, (relevant sections are on Sakai)
- TIPS: Trip Generation, Internal Capture, and Pass-by Software, <http://www.dot.state.fl.us/planning/systems/sm/siteimp/tips.shtm>
- Institute of Transportation Engineers *Trip Generation*, 7th Edition, (one copy available for class)

Discussion papers – Be prepared to discuss these in class!

- Landis, Bruce W., Venkat R. Vattikuti, Russell M. Ottenberg, Douglas S. McLeod, and Martin Guttenplan, 2001, Modeling the Roadside Walking Environment: Pedestrian Level of Service, Transportation Research Record: Journal of the Transportation Research Board, 1773: 82-88.
- Choocharukul, Kasem, Kumares C. Sinha, and Fred L. Mannering, 2004, User perceptions and engineering definitions of highway level of service: an exploratory statistical comparison, Transportation Research Part A, 38: 677-689.

Week 6: Wednesday, 10/12/11

Traffic impact analysis (2): Trip generation in practice

Guest lecturer: Prof Stuart Meck

Week 7: Wednesday, 10/19/11

Parking: Student presentations of chapters from The High Cost of Free Parking by Don Shoup (1): chapters 2, 3, 5, 6, 7

Week 8: Wednesday, 10/26/11

Parking: Student presentations of chapters from The High Cost of Free Parking by Don Shoup (2): chapters 9, 10, 11, 12, 13, 14

Week 9: Wednesday, 11/2/11

Parking: Student presentations of chapters from The High Cost of Free Parking by Don Shoup (3): chapters 15, 16, 17, 18, 19, 20

Week 10: Wednesday, 11/9/11

Guest lecturer: Gary Toth, Project for Public Spaces

Context-sensitive solutions and Complete Streets

Readings and resources

- NJ DOT Context Sensitive Design website, <http://www.state.nj.us/transportation/eng/CSD/>

- “Context-sensitive Design Around the Country: Some examples”, Transportation Research Board Circular, E-C067, July 2004.
 - <http://www.contextsensitivesolutions.org/>
 - NJ DOT Complete Streets policy,
<http://www.state.nj.us/transportation/commuter/pedsafety/complete.shtm>
<http://www.completestreets.org/webdocs/policy/cs-nj-dotpolicy.pdf>
 - Institute of Transportation Engineers and Congress for the New Urbanism, 2010, Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, Publication no. RP-036A.
- Discussion papers – Be prepared to discuss these in class!**
- Dumbaugh, Eric and Wenhao Li, 2011, Designing for the Safety of Pedestrians, Cyclists and Motorists in Urban Environments, Journal of the American Planning Association, 77(1): 69-88.

**TAKE-HOME EXAMINATION HANDED OUT AT END OF CLASS ON 11/9/11.
DUE BY 4:00pm ON FRIDAY, 11/11/10 (BOTH ELECTRONICALLY AND HARD
COPIES).**

Week 11: Wednesday, 11/16/11

New urbanism and design

Guest lecturer: Prof Tony Nelessen

Readings

- Southworth, Michael, and Eran Ben-Joseph. 1995. Street standards and the shaping of suburbia. *Journal of the American Planning Association* 61 (1):65-81.

Week 12: Monday, 11/21/11

New approaches to trip generation: EPA's MXD model

**BRING A LAPTOP TO CLASS IF YOU HAVE ONE. BE SURE TO DOWNLOAD THE
MXD SPREADSHEET FROM SAKAI PRIOR TO CLASS**

Readings and resources

- Chapter 7, Multi-use Development, Draft chapter under consideration for the Trip Generation Manual (serves as documentation for the MXD model).
- Arrington, G.B. and Robert Cervero, 2008, “Effects of TOD on Housing, Parking and Travel”, Transit Cooperative Research Program report 128, Transportation Research Board, Washington, DC.

- Bochner, Brian S., Kevin Hooper, Benjamin Sperry, and Robert Dunphy, “Improved Method for Estimating Internal Capture for Mixed-use Developments”, Revised preliminary DRAFT final report, prepared for National Cooperative Research Program, Transportation Research Board. (NCHRP 8-51)
- Ewing, Reid, Michael Greenwald, Ming Zhang, Jerry Walters, Mark Feldman, Robert Cervero, Lawrence Frank, and John Thomas, 2011, Traffic Generated by Mixed-Use Developments - Six-Region Study Using Consistent Built Environmental Measures, *Journal of Urban Planning and Development*, 137(3): 248-261.

Modeling land use: The UrbanSim model

BRING A LAPTOP TO CLASS IF YOU HAVE ONE. BE SURE TO DOWNLOAD THE URBANSIM SOFTWARE PRIOR TO CLASS

Readings and resources:

- <http://www.urbansim.org/Main/WebHome>
- Waddell, Paul, Gudmundur F. Ulfarsson, Joel P. Franklin, and John Lobb, 2007, Incorporating Land Use in Metropolitan Transportation Planning, *Transportation Research A (Policy and Practice)*, 41: 382-410.
- Kakaraparthi, Siva Karthik and Kara M. Kockelman, 2011, Application of UrbanSim to the Austin, Texas, Region: Integrated –Model Forecasts for the Year 2030, *Journal of Urban Planning and Development*, 137(3): 238-247.
- Waddell, Paul, 2011, Integrated Land Use and Transportation Planning and Modelling: Addressing Challenges in Research and Practice, *Transport Reviews*, 31(2): 209-229.

Week 13: Wednesday: 11/30/11

Student project presentations

Week 14: Wednesday, 12/7/11

Student project presentations

3rd session of student presentations, TBD, tentatively Wednesday, 12/14/11

Absences from class

Students are expected to attend all classes; if you expect to miss any classes, please use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence. An email is automatically sent to me.

Academic Integrity

Academic integrity is essential to the success of the educational enterprise and breaches of academic integrity constitute serious offenses against the academic community. Every member of that community bears a responsibility for ensuring that the highest standards of academic integrity are upheld. Only through a genuine partnership among students, faculty, staff, and administrators will the University be able to maintain the necessary commitment to academic integrity.

Full policy is available at:

<http://academicintegrity.rutgers.edu/integrity.shtml>

Written assignments for this course will be submitted electronically using plagiarism detection software.