

**Virginia Polytechnic Institute and State University**  
Urban Affairs and Planning, Alexandria Center

UAP 5424—Urban Transportation Policy and Planning  
Instructor: Ralph Buehler, PhD; ralphbu@vt.edu  
Wednesdays, 4:15-6:45 pm, Room: 304  
Office: 1021 Prince Street, Room 228  
Office Hours: by arrangement

**COURSE DESCRIPTION:**

This course provides an overview of planning and policy issues in urban transportation. Initially we will survey the recent history and current state of the U.S. urban transportation system and of spatial development patterns with which it is mutually interdependent. Next we will analyze problems and benefits of the current auto-dominated transport system. Topics include energy use, environmental justice, congestion, environmental pollution, public health, and urban sprawl. Other modes of transport including public transportation, bicycling, and walking will also be evaluated in the light of the current situation. The relative effectiveness and cost of various proposed solutions will be examined, including congestion pricing and taxation policies, improved technology, increased transit service, more bicycling, more carpooling and vanpooling, consumer regulation, investments in highway and transit infrastructure, and traffic management strategies. Moreover, the political/institutional context of urban transportation, which has changed dramatically in recent years, will be discussed, and the consequences for the future of transport planning will be explored. Most of the course will focus on the United States, but the last week of the semester will be devoted to a comparative analysis of urban transport in North America and Europe. Additionally the class will provide students with essential knowledge about current transportation databases accessible online.

**Text**

Hansen, S. and Giuliano, G. (eds.) 2004. *The Geography of Urban Transportation*. New York: Guilford Publications.

Note: Other readings will be made available electronically (Blackboard) or are accessible via the internet/library website.

***For the Book Review (each student chooses one):***

- (1) Levine, J. 2005. Zoned-out: Regulation, Markets, and Choices in Transportation and Metropolitan Land Use. Resources for the Future. (~\$27)
- (2) Shoup, D. 2005. High Cost of Free Parking. APA Planners Press. (~\$60)
- (3) Downs, A. 2004. Still Stuck in Traffic. Coping with Peak-Hour Traffic Congestion. Brookings Institution. (~\$27)
- (4) Kunstler, J.H. 2005. The Long Emergency. Surviving the End of Oil, Climate Change, and Other Converging Catastrophes of the Twenty-First Century. Atlantic Monthly Press. (~\$20)
- (5) Ewing, R. et al. 2008. Growing Cooler: The Evidence on Urban Development and Climate Change. Urban Land Institute. (~\$32)

Due dates for book reviews:

- (1) Levine, J. 2005. Due at beginning of SECOND LAND USE session
- (2) Shoup, D. 2005. Due at beginning of SECOND CONGESTION session
- (3) Downs, A. 2004. Due at beginning of SECOND CONGESTION session
- (4) Kunstler, J.H. 2005. Due at beginning of ENERGY/ENVIRONMENT session
- (5) Ewing, R. et al. 2008. Due at beginning of ENERGY/ENVIRONMENT session

**Assignments and Grades**

The course requirements will consist of a series of short assignments (20% of final grade), a book review (10%), a mid-term exam (25%), a final paper (25%) and presentation of final paper (10%). Attendance and participation are expected (10%). Classes will generally consist of a lecture and student activities, such as discussions or short assignments.

Generally, assignments and papers are due at the beginning of each class period and are expected to be handed in on time. Late assignments are penalized by a drop of one letter grade for each 24 hour period. If you cannot hand in an assignment on time please communicate with me *prior* to the deadline.

**Course Outline**

(Note: Readings marked with an \* are required for class and/or assignments; additional resources are listed for further reading, but are not required for this class)

**Week 1 “INTRODUCTION AND HOUSE KEEPING”**

**27. August: Introduction – State of the Transportation System**

\*Pisarski, A. 2007. *Commuting in America III: The Third National Report on Commuting Patterns and Trends*. Transportation Research Board, 2007. Short summary. Accessible at: <http://onlinepubs.trb.org/onlinepubs/trnews/trnews247CIAIII.pdf> or listen to podcast accessible at: [http://www.trb.org/news/blurbs\\_detail.asp?id=6699](http://www.trb.org/news/blurbs_detail.asp?id=6699) (click on podcast)

\*Pucher, J. and Renne, J. 2003. “Socioeconomics of urban travel: Evidence from the 2001 NHTS,” *Transportation Quarterly*, Vol. 57, No. 3, pp. 49-78. Accessible online at: [http://policy.rutgers.edu/vtc/documents/LandUse.SocioEcon\\_Urb-Pucher\\_RenneTQ.pdf](http://policy.rutgers.edu/vtc/documents/LandUse.SocioEcon_Urb-Pucher_RenneTQ.pdf)

Additional readings:

Hanson, S. 2004. “The Context of Urban Travel.” in Hanson, *Geography*, pp. 3-30.

Handy, S. 2002. *Accessibility vs. Mobility*. Accessible online at: [http://www.des.ucdavis.edu/faculty/handy/ECMT\\_report.pdf](http://www.des.ucdavis.edu/faculty/handy/ECMT_report.pdf)

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Pucher, J. and Renne, J. 2004. “Urban-rural differences in mobility and mode choice: Evidence from the 2001 NHTS,” *Transportation Quarterly*, Vol. 57, No. 3, pp. 49-78. Accessible on-line at: [http://policy.rutgers.edu/vtc/documents/Articles.Urban-Rural\\_differences.pdf](http://policy.rutgers.edu/vtc/documents/Articles.Urban-Rural_differences.pdf)

U.S. Department of Transportation. 1992. *Urban Transportation Planning In the US - A Historical Overview*. Available online: <http://ntl.bts.gov/DOCS/UTP.html> (This is a huge document with more than 200 pages; no need to read it all. The document just provides a good background for your reference—you do not have to read this in its entirety)

*Movie: Contested Streets Part 1—History of NYC*

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## **Week 2 “THE BASICS REVISTED”**

### **3. September: Review—Economic Concepts and Methods**

\*Klostermann, R. E. 1996. “Arguments for and against planning”, In Fainstein, S. and Campbell, S. (eds.) 1996. *Readings in Planning Theory*. Blackwell Publishers. (read economic arguments section)

*Print and bring to class:* Jackson, R. 2000. *Creating a Healthy Environment: The Impact of the Built Environment on Public Health*. Sprawl Watch. Available online at: <http://www.cdc.gov/healthyplaces/articles/Creating%20A%20Healthy%20Environment.pdf>

*Introduction to National Household Travel Survey (NHTS)*

*Methods and economic concept handouts distributed in class.*

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## **Week 3 “TRANSPORTATION HISTORY AND SPATIAL DEVELOPMENT”**

### **10. September: Transportation, Land Use, and Urban Form in the U.S.**

\*Muller, P. 2004. "Transportation and Urban Form: Stages in the Spatial Evolution of the American Metropolis," in Hanson, *Geography*, pp. 59-85.

\*P. Gordon and H. Richardson. 1997. “Are Compact Cities a Desirable Planning Goal?” *Journal of the American Planning Association*, Winter 1997, pp. 95-106.

\*R. Ewing, 1997. “Is Los Angeles-Style Sprawl Desirable?” *Journal of the American Planning Association*, Winter 1997, pp. 107-126.

Additional reading:

*Burchell et al. 2000. Costs of Sprawl 2000*. Available on line at: [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_74-a.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_74-a.pdf). Executive summary only.

*Exercise: Visual Preference Survey / Evaluating Main Street*

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## Week 4 “TRANSPORTATION AND SPATIAL DEVELOPMENT CTD.”

(NOTE: I have to attend a new employee orientation event in Falls Church that day, thus class might start later!)

### 17. September: Transportation and the Built Environment

Book reviews due: Levine

3 Student Briefs: Smart Growth, New Urbanism, Transit Villages/Transit Oriented Development

\*Ewing, R. 2000. *Pedestrian and Transit Friendly Design: A Primer for Smart Growth*. Smart Growth Network. Accessible online at: [http://www.epa.gov/dced/pdf/ptfd\\_primer.pdf](http://www.epa.gov/dced/pdf/ptfd_primer.pdf)

\*Giuliano, G. 2004. “Land Use Impacts of Transportation Investments.” in Hanson, *Geography*, pp. 237-273.

Additional reading:

The Transportation Research Board. 2005. “Does the Built Environment Influence Physical Activity? Examining the Evidence.” Washington D.C. Report can be downloaded at: [http://trb.org/news/blurb\\_detail.asp?id=4536](http://trb.org/news/blurb_detail.asp?id=4536)

Boarnet, M. and Crane, R. (2001) The influence of land use on travel behavior: specification and estimation strategies, *Transportation Research part A*, 35(9): 823-845.

Ewing, R. et al. 2003. “Scoring Formula for New Jersey’s Main Streets”. Accessible online at: [http://policy.rutgers.edu/vtc/documents/LandUse.main\\_st\\_scoring\\_formula.pdf](http://policy.rutgers.edu/vtc/documents/LandUse.main_st_scoring_formula.pdf)

Handy, S. 2005. Smart growth and the transportation - Land use connection: What does the research tell us? Accessible online at: <http://repositories.cdlib.org/cgi/viewcontent.cgi?article=2410&context=postprints>

Golob, T. F. and Brownstone, D. 2005. *The Impact of Residential Density on Vehicle Usage and Energy Consumption*. University of California Energy Institute. Policy & Economics. Accessible online: <http://repositories.cdlib.org/ucei/policy/EPE-011>

Exercise Continued: Visual Preference Survey / Evaluating Main Street

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## Week 5 “MODES OF TRANSPORTATION: PUBLIC TRANSIT”

### 24. September: The Decline (and Renaissance?) of Public Transportation in the U.S.

Student Briefs: New Starts/Small Starts Program

\*Pucher, J. 2004, “Public Transportation,” in Hanson, *Geography*, pp. 199-236.

\*Pucher, J. 2002 “Renaissance of Public Transport in the USA,” *Transportation Quarterly*, winter 2002, accessible at: <http://policy.rutgers.edu/faculty/pucher/TQPDF.pdf>

\*Transportation Research Board 2000. “*Making Transit Work. Special Report 257*” TRB, Washington, DC. Chapter 2 (pp.17-60, with lots of graphs and pictures!). Available online.

Additional readings:

Urban Land Institute. 2003. *Ten Principles for Successful Development around Transit*. Washington, D.C.: ULI.

*Movie and discussion “Taken for a Ride”*

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## **Week 6 “MODES OF TRANSPORTATION: CYCLING AND WALKING”**

**1. October: Non-motorized Transportation***Student Brief: Safe Routes to School, Complete Streets*

\*Dill, J. and Carr, T. 2003. Bicycle Commuting and Facilities in Major U.S. Cities: If You Build Them, Commuters Will Use Them – Another Look. *Transportation Research Record No. 1,828*, pp. 116-123. Washington, DC. Transportation Research Board.

\*Pucher, J. and Buehler, R. 2006. “Why do Canadians Cycle More Than Americans?” *Transport Policy*.

\*Pucher, J. and Dijkstra, L. 2003. “Promoting Safe Walking and Cycling to Improve Public Health,” *American Journal of Public Health*, Vol. 93, No. 9, September 2003, pp. 1509-1517.

Additional reading:

Basset, D. et al. (forthcoming). “Walking, Cycling, and Obesity Rates in Europe, North America, and Australia.” *Journal of Physical Activity and Health*.

Ewing R, et al. (2003) Relationship between urban sprawl and physical activity, obesity, and morbidity. *American Journal of Health Promotion*, 18: 47-57.

Frumkin, H. 2002 Viewpoint: Urban sprawl and public health. In: *Public Health Reports*. Volume 117, pp. 201-217. Accessible online at:

<http://www.cdc.gov/healthyplaces/articles/Urban%20Sprawl%20and%20Public%20Health%20-%20PHR.pdf>

Thunderhead Alliance. 2007. “Benchmarking Report: Walking and Cycling in the U.S.” Accessible online at:

[http://www.thunderheadalliance.org/site/index.php/site/comments/2007\\_benchmarking\\_report/](http://www.thunderheadalliance.org/site/index.php/site/comments/2007_benchmarking_report/)

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Exercise: Multiple regression in practice & Movie: “Copenhagen City of Cyclists”

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## Week 7 “PROBLEMS OF THE TRANSPORTATION SYSTEM: CONGESTION”

### 8. October: Congestion - Stuck in Traffic

\*Texas Transportation Institute. 2007. *The 2007 Urban Mobility Report*. TTI. Accessible online at: [http://tti.tamu.edu/documents/mobility\\_report\\_2007.pdf](http://tti.tamu.edu/documents/mobility_report_2007.pdf)

\*Downs, A. 2004. The need for regional anti-congestion policies. Washington, D.C.: Brookings Institution. Accessible online at: [http://www.brookings.edu/~media/Files/rc/reports/2004/02transportation\\_downs/20040220\\_Downs.pdf](http://www.brookings.edu/~media/Files/rc/reports/2004/02transportation_downs/20040220_Downs.pdf)

Additional reading:

Downs, A. 2004. *Still Stuck in Traffic. Coping with Peak-Hour Traffic Congestion*. Washington, D. C.: Brookings Institution Press.

Van Hattum, D. and M. Zimmermann. 1996. *Buying Time: Guidebook for those Considering Congestion Relief Tolls in their Communities*. Hubert H. Humphrey Institute of Public Affairs. University of Minnesota. Accessible online.

*Short Movie and Discussion “A Citizen’s Journey”*

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## Week 8 “PROBLEMS OF THE TRANSPORTATION SYSTEM: CONGESTION CTD.”

### 15. October: Congestion Pricing in Practice and Parking

Book reviews due: Downs & Shoup

Student Briefs: Singapore, Trondheim, London

\*Komanoff, Ch. and P.E. Ketcham. 2003. *The Hours. Time Savings from Tolling the East River Bridges*. Bridge Tolls Advocacy Project. (Read the executive summary). On-line at: <http://www.bridgetolls.org/research/>

\*RPA Report Scenarios. (read the executive summary) Online at: [http://www.rpa.org/pdf/RPA\\_Congestion\\_Pricing\\_NY.pdf](http://www.rpa.org/pdf/RPA_Congestion_Pricing_NY.pdf)

\*Don Shoup, “The High Cost of Free Parking,” *Journal of Planning Education and Research*, Vol. 17, No. 1, fall 1997, pp. 3-20.

Additional readings: next page

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Litman, T. 2005. *London Congestion Pricing. Implications for Other Cities*. Victoria Transport Policy Institute.

Don Shoup, "Evaluating the Effects of Cashing out Employer-paid Parking: Eight Case Studies," *Transport Policy*, Vol. 4, No. 4, 1997, pp. 201-216.

Exercise: Role Play

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## Week 9

### 22. October: Mid-term Exam

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## Week 10 "PROBLEMS OF THE TRANSPORTATION SYSTEM: ENERGY USE AND POLLUTION"

### 29. October: Transport Energy and the Environment

Book reviews due: Kunstler & Ewing

Student Briefs: Clean Air Act, Environmental Impact Statement, Lieberman-Warner Climate Security Act

\*Greene, D. "Transportation and Energy," in Hanson, *Geography*, pp. 274-293.

\*Bae, Ch. "Transportation and the Environment," in Hanson, *Geography*, pp. 356-381.

Additional readings:

*Skim:* Graham, D. J. and Glaister, S. 2002. *The Demand for Automobile Fuel. A Survey of Elasticities*. *Journal of Transportation Economics*, Volume 36.

Golob, T. F. and Brownstone, D. 2005. *The Impact of Residential Density on Vehicle Usage and Energy Consumption*. University of California Energy Institute. Policy & Economics. Accessible online: <http://repositories.cdlib.org/ucei/policy/EPE-011>

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## Week 11 "PROBLEMS OF THE TRANSPORTATION SYSTEM: EQUITY"

### 5. November: Transportation, Equity and Social Justice

\*Deka, D. "Social and Environment Justice Issues in Urban Transport," in Hanson, *Geography*, pp. 332-355.

Tal, G. and Handy, S. (2005) *The Travel Behavior of Immigrants and Race/Ethnicity Groups: An Analysis of the 2001 National Household Transportation Survey*. UCD-ITS-RR-05-24. Accessible online at: <http://www.its.ucdavis.edu/publications/2005/UCD-ITS-RR-05-24.pdf>

*FHWA case studies*

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## **Week 12 “SOLUTIONS: SUSTAINABLE TRANSPORTATION?”**

### **12. November: Sustainable Transportation**

*Student Briefs: Case Studies Sustainable Policies Cities/Countries*

\*Low, N. and B. Gleeson. (2001). “Ecosocialization or Countermodernization? Reviewing the Shifting Storylines of Transport Planning.” In: *International Journal of Urban Regional Research*. Volume 25, Issue 2.

\*Pucher, J., L.M. Gosslin and D. Banister. 2005. *Making Sustainable Transportation Politically and Publicly Acceptable*.

Additional readings:

Enoch, M. and S. Wixey 2005. Alternative Implementation Strategies for Radical Transport Schemes.

Litman, T. (2005) *The Future Isn't What It Used To Be. Changing trends and their implications for transport planning*. Victoria, BC: VTPI.  
(<http://www.vtpi.org/future.pdf>)

Kenworthy, J. and Laube, F. (1999) Patterns of automobile dependence in cities: an international overview of key physical and economic dimensions with some implications for urban policy. *Transportation Research part A*, 33(7/8): 691-723.

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## **Week 13 “SOLUTIONS: GOOD TRANSPORTATION POLICY?”**

### **19. November: Transportation Policy in the U.S.**

*3 Student Briefs: ISTEAs, CMAQ, SAFETEA-LU*

\*Taylor, B. “The Geography of Transportation Finance”, in Hanson, *Geography*, pp. 294-331

\*Puentes, R. and Prince, R. 2002. *Fueling Transportation Finance: A Primer on the Gas Tax*. Brookings.

\*ENO Foundation. 2002. *National Transportation Organizations. Their Roles in the Policy Development and Implementation Process*. ENO Foundation, Washington D.C.

*Additional Readings:*

Goetz, A. R., Dempsey, P. S. and C. Larson. 2002. *Metropolitan Planning Organizations: Findings and Recommendations for Improving Transportation Planning*. In: Publius: The Journal of Federalism. Volume 32, No. 1.

Katz, B., Puentes, R. and S. Bernstein. 2003. *TEA-21 Reauthorization: Getting Transportation Right for Metropolitan America*. Brookings.

Transportation Research Board (TRB). 2002. *The Congestion Mitigation and Air Quality Improvement Program. Assessing 10 years of Experience*. TRB Special Report 264. Transportation Research Board. Washington D.C.

U.S. Department of Transportation. 1991. *A Guide to Metropolitan Transportation Planning Under ISTEA - How the Pieces Fit Together*. Online at:

<http://www.fta.dot.gov/library/planning/MTPISTEA/424MTP.html>

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**Week 14**

**26. November: Thanksgiving Week**

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**Week 15 “SOLUTIONS: CAN WE LEARN FROM OTHER COUNTRIES?”**

**3. December: International Comparative Urban Transportation**

\*Pucher, J. and Buehler, R. 2005. *Transport Policies in Central and Eastern Europe*

<http://www.policy.rutgers.edu/faculty/pucher/PDF%20of%20chapter.pdf>

\*Kenworthy, J. and F. Laube. 1999. Patterns of automobile dependences in cities: an international overview of key physical and economic dimensions with some implications for urban policy. In: *Transportation Research Part A*, 33 (1999), pp. 691-723.

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**Week 16**

**10. December: Final Presentations--(Papers due at beginning of class!)**

**GRADUATE HONOR CODE:**

The tenets of the Virginia Tech Graduate Honor Code will be strictly enforced in this course, and all assignments shall be subject to the stipulations of the Graduate Honor Code as outlined in the 2006-2007 Graduate Catalog. For more information on the Graduate Honor Code, please refer to the GHS Constitution, located online at <http://fbox.vt.edu/studentinfo/gradhonor>. Please contact the instructor immediately if you have questions.

### **SPECIAL ACCOMMODATIONS:**

Students with special needs or circumstances are encouraged to meet with the instructor after the first class or a.s.a.p. Please do not wait until later in the semester. In all cases, please feel free to contact the instructor, should you have any questions.

### **Resources for Students interested in Transportation Policy and Planning**

#### **Academic journals available electronically on the VT library webpage.**

Journal of transport geography  
Transport policy  
Transport reviews  
Transportation  
Transportation quarterly  
Transportation research. Part A, Policy and practice  
Transportation research. Part D, Transport and environment

#### **Online search engines for transportation literature:**

<http://tran.library.northwestern.edu/> (TranWeb from Northwestern University)  
<http://ntlsearch.bts.gov/tris/index.do> (Transportation Research Information Services, which allows you to search in the *national transportation library*)

#### **Useful online databases for transportation research**

<http://www.dot.gov/> United States Department of Transportation (DOT)  
<http://www.bts.gov/> BTS (Bureau of Transportation Statistics)  
<http://www.fta.dot.gov/> FTA (Federal Transit Administration)  
<http://www.fhwa.dot.gov/reauthorization/safetea.htm> SAFETEA - Site  
<http://ntl.bts.gov/index.cfm> (National Transportation Library)  
[www.apta.com](http://www.apta.com) (American Public Transportation Association)  
[www.fhwa.dot.gov](http://www.fhwa.dot.gov/) (Federal Highway Administration)  
<http://www.fhwa.dot.gov/tea21/> (Transportation Equity Act 21)  
[http://apta.com/government\\_affairs/safetea\\_lu/](http://apta.com/government_affairs/safetea_lu/) (Many links to SAFETA-LU)  
<http://www.vtpi.org> (Victoria Transport Policy Institute)  
<http://www.nhtsa.dot.gov> (National Highway Traffic Safety Administration )  
<http://www.cdc.gov/ncipc/wisqars/> (Web-based Injury Statistics Query and Reporting System )  
<http://www.library.northwestern.edu/transportation/> (Northwestern University)  
<http://www.brookings.edu/metro/overview.htm> (Brookings Institution)  
<http://www.rff.org/Transportation.cfm> (Resources for the Future (RFF))  
<http://cta.ornl.gov/data/index.shtml> (Transportation and Energy Data Book, DOE)  
<http://nhts.ornl.gov> (National Household Travel Survey)  
[www.census.gov](http://www.census.gov) (U.S. Census)  
<http://ntl.bts.gov/index.cfm> (National Transportation Library)  
[http://ec.europa.eu/transport/index\\_en.html](http://ec.europa.eu/transport/index_en.html) (EU directorate general transportation website)  
<http://www.internationaltransportforum.org/> (previously known as European Conference of Ministers of Transport)  
<http://www.epa.gov/ttn/chieftrends/index.html#tables> (National Emissions Inventory (NEI) Air Pollutant Emissions)