

UP 460: SUSTAINABLE URBAN TRANSPORTATION AND LAND USE POLICY

Fall 2024, Department of Urban and Regional Planning, University of Illinois at Urbana-Champaign

CLASS MEETINGS:	Tuesdays and Thursdays, 11:00 am – 12:20 am TBH 223
INSTRUCTOR:	Bumsoo Lee, bumsoo@illinois.edu
OFFICE HOURS:	10:00 am – 10:50 am on Thursday and by appointment

COURSE OVERVIEW

For decades, congestion in auto-oriented US cities has been worsening. Simultaneously, government funding for new transportation infrastructure has become increasingly constrained. Moreover, concerns about climate change and energy consumption make policies that further increase automobile dependency unpopular. In response, urban planners are increasingly turning to **alternative strategies** that involve modifying development patterns and land uses **to address transportation challenges**. There is substantial evidence that downtown workers and residents drive less and use more sustainable modes of transportation compared to their suburban counterparts. This raises an important question: If we design and develop suburban neighborhoods to resemble downtown areas—with higher density, mixed land use, and transit- and pedestrian-friendly street layouts—would people drive less?

This course is designed to explore **integrated approaches to sustainable urban transportation and land use planning**. It emphasizes **the critical interaction between the built environment and transportation systems**. How do urban form and land use patterns influence travel behavior? How do new investments in transportation infrastructure—whether highway or transit—shape subsequent development patterns? To address these questions, students will engage with land use/transportation theories and models, review empirical studies, compare various transportation and land use policies, and conduct original research.

Topics to be covered:

1. Contemporary urban transportation and land use issues and policy debates
2. Theories of travel demand and behavior
3. Influence of urban form (land use) on travel behavior
4. Impacts of transportation investments on urban development
5. Integrated transportation/land use planning and smart growth strategies
6. Travel demand management
7. Transit-oriented development (TOD)

This course focuses on the interaction between transportation and land use and is **research oriented**. Students interested in foundational transportation planning skills are advised to take UP 430 Urban Transportation Planning and UP 431 Urban Transportation Modeling.

TEXTBOOK

Giuliano, Genevieve and Susan Hanson eds. 2017. *The Geography of Urban Transportation*, 4th ed. New York, NY: The Guilford Press.

- Additional readings will be posted to the Canvas. <http://canvas.illinois.edu>
- In most sessions, a lecture will be accompanied by discussion (often led by graduate students) based on readings. Students should read **ALL** reading assignments before class.

PREREQUISITE

There is no prerequisite for this course. However, this course is open only to juniors, seniors, and graduate students.

EVALUATION

	Undergraduate students	Graduate students
Class Participation/Attendance	10 %	10 %
4 Assignments	40 %	40 %
Best practice presentation [BPP]	20%	0 %
Case study term paper & presentation	30%	0 %
Student led discussion [SLD]	0 %	10 %
Research term paper & presentation	0 %	40 %

COURSE AT A GLANCE

1	Aug 27	Course overview	
	Aug 29	Contemporary issues and debate—Land use/transportation connection	Assignment #1 due
2	Sep 3	Transportation, energy, and the environment	
	Sep 5	The context of urban travel—from mobility to accessibility [1 SLD]	
3	Sep 10	Theories of travel demand [2 SLD]	
	Sep 12	Influence of land use on travel—Case study & cross-sectional study [2 SLD]	
4	Sep 17	Influence of land use on travel—More on operationalizing urban form [1 SLD]	Assignment #2 due
	Sep 19	Influence of land use on travel—Longitudinal & meta-analysis [2 SLD]	
5	Sep 24	Influence of land use on travel—Self-selection & regional spatial structure [1 SLD]	
	Sep 26	Influence of land use on travel—Market for smart growth [2 SLD]	
6	Oct 1	Influence of land use on travel—Integrated T/LU planning [3 BPP]	Assignment #3 due
	Oct 3	Transportation investment and urban development—A longer view	
7	Oct 8	Transportation investment and urban development—Case studies [1 SLD]	Term paper abstract due
	Oct 10	Transforming cities with transit, global best cases [3 BPP]	
8	Oct 15	TOD—Definition, impacts & design principles [1 SLD]	
	Oct 17	TOD—Strategic, regional & corridor planning	
9	Oct 22	TOD—Tools, finance & affordable housing	
	Oct 24	TOD—Best cases [3 BPP]	
10	Oct 29	Road pricing—Fundamental economics	Assignment #4 due
	Oct 31	Road pricing—Equity [2 SLD]	
11	Nov 5	Road pricing—Case studies [3 BPP]	Progress report due
	Nov 7	No class due to ACSP Conference	
12	Nov 12	Travel demand management & nudge	
	Nov 14	Travel demand management & nudge —Case studies [1 SLD] [1-2 BPP]	
13	Nov 19	Minimum parking requirement & alternatives [1 SLD] [1-2 BPP]	
	Nov 21	Parking pricing [1-2 BPP]	
14	Nov 26	Fall Break	
	Nov 28	Fall Break	
15	Dec 3	Term Paper Presentation	
	Dec 5	Term Paper Presentation	
16	Dec 10	Term Paper Presentation	
Final Paper due on Dec 16, Monday by NOON			

[SLD] Graduate student-led research paper presentation and **discussion**.

[BPP] Best practice presentation led by **undergraduate** students.

COURSE REQUIREMENTS

Course Format: This course combines **lectures** and **discussions**. Required readings, along with student-led presentations & discussions, are central to the learning experience. All lecture notes will be posted on Canvas.

Homework Assignments (All Students): Four homework assignments, including short essays and analysis papers, will be assigned throughout the semester. All assignments and term papers are due **by 11 am** on the due dates. Late submissions will incur a penalty of **20% per day**, up to a maximum of 50%.

Best Practice Presentation [BPP] (Undergraduate Students): Each undergraduate student is required to present a case study of best practices and lead a discussion on a selected topic from the following: integrated transportation and land use planning, transforming cities with transit, TOD, travel demand management (TDM) and nudge for sustainable transportation, congestion pricing, and parking policies. These presentations are marked as **[BPP]** in the course schedule. No written report is required. Detailed guidelines and a sign-up Google Sheet will follow.

Student Led Discussion [SLD] (Graduate Students): Each graduate student is required to present and lead the discussion on one research article selected from the assigned readings. These papers are marked as **[SLD]** in the course schedule. No written report is required for this assignment. Detailed guidelines and a sign-up Google Sheet will be provided.

Term Paper Case Study & Presentation (Undergraduate Students): Undergraduate students are required to conduct a case study, present their findings, and submit a 10-page report. The case study can focus on a specific policy, program, project, or city that illustrates successful (or unsuccessful) implementation of sustainable transportation and land use policies. Students may choose the same topic as their best practice presentation but must demonstrate further development through in-depth analysis and evaluation. Detailed instructions will be provided. Students are strongly encouraged to consult with the instructor as needed regarding their term paper topic.

Term Paper Research & Presentation (Graduate Students): Graduate students are required to conduct research, present their findings, and submit a 15-page term paper on a topic related to sustainable transportation and land use. The term paper may take the form of a case study, empirical study, policy evaluation, or other research types on a topic covered in class. Detailed instructions will follow. Students are strongly encouraged to consult with the instructor regularly regarding their research topic, methods, data sources, and other relevant aspects.

* **Plagiarism:** Plagiarism is strictly prohibited in this course. Any accidental or intentional use of another person's words, work, or ideas without proper attribution (e.g. quotation and citation) will result in a **failing grade** on the assignment and/or in the course. Please refer to the university's definition of plagiarism here: <https://studentcode.illinois.edu/article1/part4/1-402/>. All submissions through Canvas will be automatically checked for plagiarism.

Schedules for term paper deadlines:

[Oct 8] One-page study plan (abstract).

[Nov 5] Three-page progress report documenting what has been done and what needs to be done, expected findings, and expected table of content in the final paper.

[Dec 3, 5 & 10] Research/Case Study presentation. PPT file is due by 10am on the presentation day.

[Dec 16, Monday] Term paper due by Noon.

POLICIES

SPECIAL ACCOMMODATIONS	This course will accommodate students with documented disabilities. Please refer to https://www.disability.illinois.edu/ for more information and provide the appropriate documentation in the beginning of the semester.
ACADEMIC INTEGRITY	This course follows the guidelines set forth by the University student code. See https://studentcode.illinois.edu/article1/part4/1-402/ for specific guidelines, examples, and punishment associated with academic dishonesty. Pay special attention to 1-402 b. Plagiarism .
EMERGENCY RESPONSE RECOMMENDATIONS	The Department of Homeland Security and the University of Illinois at Urbana-Champaign Office of Campus Emergency Planning recommend the following three responses to any emergency on campus: RUN > HIDE > FIGHT . For more information, https://police.illinois.edu/em/run-hide-fight/
COUNSELING CENTER	The Counseling Center is committed to providing a range of services intended to help students develop improved coping skills in order to address emotional, interpersonal, and academic concerns. The Counseling Center provides individual, couples, and group counseling. All of these services are paid for through the health services fee. The Counseling Center offers primarily short term counseling, but they do also provide referrals to the community when students could benefit from longer term services. https://counselingcenter.illinois.edu/
USE OF GENERATIVE AI TECHNOLOGY	<p>The use of Generative AI tools, including ChatGPT and Gemini, is permitted for these limited activities:</p> <ul style="list-style-type: none">- Brainstorming and refining your ideas- Finding information on your topic- Checking grammar and style <p>Activities for which the use of generative AI is not permitted include:</p> <ul style="list-style-type: none">- Writing a draft of a writing assignment- Writing entire sentences, paragraphs or papers to complete class assignments- Generating tables and figures to include in class assignments <p>You are responsible for the information you submit based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited in order to stay within university policies on academic honesty mentioned above. Any use outside of this permission will be considered academic dishonesty.</p>

COURSE SCHEDULE
with
Reading assignments

[SLD] Graduate student led presentation & discussion.
[BPP] Best practice presentations by undergraduate students.
* Optional reading for undergraduate; strongly suggested for graduate students.

Week 1

Aug 27 Introduction and Course Overview

Aug 29 [Discussion] Contemporary Issues and Debates – Does transportation-land use connection matter?

[Assignment #1 due]

Giuliano, Genevieve. 1995. The weakening transportation-land use connection. *Access* (6):3-11.

Cervero, Robert, and John Landis. 1995. The transportation-land use connection still matters. *Access* (7):2-11.

*Moore, A., S. Staley, and R. Poole. 2010. The role of VMT reduction in meeting climate change policy goals. *Transportation Research A* 44 (8), 565–574.

*Winkelman, S. and A. Bishins. 2010. Planning for economic and environmental resilience. *Transportation Research A* 44 (8), 575–586.

Week 2

Sep 3 Transportation, Energy, and the Environment

Greene, David. Ch.12 Transportation and energy. In Giuliano & Hanson (2017).

Le Vine & Lee-Gosselin. Ch. 11 Transportation and environment impacts and policy. In Giuliano & Hanson (2017).

Sep 5 Context of Urban Travel, from Mobility to Accessibility

Hanson, Susan. Ch.1 Introducing Urban Transportation. In Giuliano & Hanson (2017).

[SLD] Levine J, Grengs J, Shen Q, 2012, "Does Accessibility Require Density or Speed?" *Journal of the American Planning Association* 78: 157-172.

Week 3

Sep 10 Theories of Travel Demand

Miller, Harvey. Ch. 5 Theories and Models in Transportation Planning. In Giuliano & Hanson (2017).

[SLD] Dill et al. 2014. How can psychological theory help cities increase walking and bicycling? *Journal of the American Planning Association* 80: 36-51.

[SLD] Schneider, Robert J. 2013. Theory of routine mode choice decisions: An operational framework to increase sustainable transportation. *Transport Policy* 25: 128-137.

Sep 12 Influence of Land Use on Travel—Introduction, case study & cross-sectional study

[SLD] Handy, S. 1996. Understanding the link between urban form and non-work travel behavior. *Journal of Planning Education and Research*, 15, 183-198.

[SLD] Cervero, Robert, and Kara Kockelman. 1997. Travel demand and the 3Ds: density, diversity, and design. *Transportation Research D* 2 (3):199-219.

WEEK 4

Sep 17 Influence of Land Use on Travel—more on operationalizing urban form

[Assignment #2 due]

- Krizek, K. 2003. Operationalizing neighborhood accessibility for land use-travel behavior research and regional modeling. *Journal of Planning Education and Research*, 22, 270-287.
- [SLD] Hamidi, S., Ewing, R., Preuss, I., & Dodds, A. 2015. Measuring Sprawl and Its Impacts: An Update. *Journal of Planning Education and Research*, 35(1), 35-50.

Sep 19 Influence of Land Use on Travel—longitudinal and meta-analysis

- [SLD] Krizek, K. 2003. Residential relocation and changes in urban travel: Does neighborhood-scale urban form matter? *Journal of American Planning Association*, 69(3), 265-281.
- [SLD] Ewing, R., & Cervero, R. 2010. Travel and the built environment--A Meta-Analysis. *Journal of the American Planning Association*, 76(3), 265-294.

WEEK 5

Sep 24 Influence of Land Use on Travel—residential self-selection, regional spatial structure

- [SLD] Handy, S., X. Cao, and P. Mokhtarian. 2009. Self-selection and the effect of the built environment on active travel. *Policy Brief for Active Living Research*.
- [SLD] Ewing R & Hamidi S. 2015. Compactness versus Sprawl: A Review of Recent Evidence from the United States. *Journal of Planning Literature* 30(4): 413-432.
- [SLD] Lee, S. and B. Lee. 2020. Comparing the impacts of local land use and urban spatial structure on household VMT and GHG emissions. *Journal of Transport Geography* 84, 1-14.

Sep 26 Influence of Land Use on Travel—market for smart growth

- [SLD] Talen, E., & Knaap, G. 2003. Legalizing Smart Growth: An Empirical Study of Land Use Regulation in Illinois. *Journal of Planning Education and Research*, 22(4), 345-359.
- [SLD] Levine, J., & Inam, A. 2004. The market for transportation-land use integration: Do developers want smarter growth than regulations allow? *Transportation*, 31(4), 409-427.
- Patrick Sisson. 2023. What is zoning reform and why do we need it? *Planning Magazine*.
<https://www.planning.org/planning/2023/winter/what-is-zoning-reform-and-why-do-we-need-it/>
- * Levine, J., Inam, A., & Torng, G.-W. 2005. A Choice-Based Rationale for Land Use and Transportation Alternatives: Evidence from Boston and Atlanta. *Journal of Planning Education and Research*, 24(3), 317-330.
- * Lee, Yongsung, Bumsoo Lee, and Md Tanvir Hossain Shubho. 2019. "Urban Revival by Millennials? Intraurban Net Migration Patterns of Young Adults, 1980–2010." *Journal of Regional Science* 59 (3): 538–66. <https://doi.org/10.1111/jors.12445>.

WEEK 6

Oct 1 Influence of Land Use on Travel—integrated transportation and land use planning

[Assignment #3 due]

- [BPP] 3 Best practice presentations selected from Litman (2016) and Sabouri, et al. (2019).
- Litman, T. 2016. Smart Growth Reforms: Changing Planning, Regulatory and Fiscal Practices to Support More Efficient Land Use. Victoria Transport Policy Institute. pp. 2-64.
- Sabouri, S., Dillon, A., Proffitt, D., Townsend, M., & Ewing, R. (2019). State-of-the-Practice in Connecting and Coordinating Transportation and Land Use Planning in the U.S.A. *Transportation Research Record*.
- * Smart Growth America (2015). *The Innovative DOT: A Handbook of Policy and Practice*. Ch. 7 Integrating transportation and land use decision-making. Washington, DC: Smart Growth America. 189-223.

Oct 3 Transportation Investment and Urban Development—a longer view

- Muller, Peter O. 2017. Ch.3 Transportation and urban form: Stages in the spatial evolution of the American metropolis. In Giuliano & Hanson (2017).

Giuliano, Genevieve. Ch.9 Land use impacts of transportation investments. In Giuliano & Hanson (2017).

Week 7

Oct 8 Transportation Investment and Urban Development—case studies

[Term paper abstract due]

Landis, J. and Cervero, R. (1999). BART and urban development. *Access*, 14, 2-15.

[SLD] Baker, D. M., and Lee, B. (2019). How does light rail transit (LRT) impact gentrification? Evidence from fourteen US urbanized areas. *Journal of Planning Education and Research*, 39(1), 35-49.

Oct 10 Transportation Investment and Urban Development—transforming cities with transit

Suzuki, H., R. Cervero, and Iuchi, K. 2013. *Transforming Cities with Transit*. The World Bank. Overview (pp. 1-23).

[BPP] 3 *Best practice presentations selected from Suzuki, et al. (2013) or other sources*. Ch. 2 Lessons from sustainable transit-oriented cities (pp. 49-91). Ch. 3 Integrating transit and urban development in cities in the developing world (pp. 95-145).

Week 8

Oct 15 TOD—definition, impacts & design principles

Center for TOD. 2008. TOD202 Station area planning: How to make great transit-oriented places
Transit Cooperative Research Program. 2002. *Transit-Oriented Development and Joint Development in the United States: A Literature Review*. Washington, DC: Transportation Research Board. Ch. I Introduction.

[SLD] Zamir et al. 2014. Effects of transit-oriented development on trip generation, distribution, and mode share in Washington, D.C., and Baltimore, Maryland. *Transportation Research Record* 2413: 45-53.

* Florida Department of Transportation. 2009. *Transit Oriented Development Design Guidelines*.

Oct 17 TOD—strategic planning, regional planning & corridor planning

Center for TOD. 2011. TOD204 Planning for TOD at the regional scale.

Center for TOD. 2011. TOD203 Transit corridors and TOD: Connecting the dots.

* City of Denver 2014 *Transit Oriented Development Strategic Plan*.

Week 9

Oct 22 TOD—tools, finance & affordable housing

Transit Cooperative Research Program. 2002. *Transit-Oriented Development and Joint Development in the United States: A Literature Review*. Washington, DC: Transportation Research Board. Ch. IV Implementation.

Center for TOD. 2009. TOD201 Mixed income housing near transit: Increasing affordability with location efficiency.

Oct 24 TOD—Best Practices

[BPP] 3 *Best practice presentations on successful TOD*

Week 10

Oct 29 Road Pricing—Fundamental Economics

[Assignment #4 due]

- Moore, T. and P. Thorsnes. 2007. *The Transportation/Land Use Connection, 2nd edition*. Chicago, IL: American Planning Association. Appendix C. Surface transportation: how it works.
- Moore, T. and P. Thorsnes. 2007. *The Transportation/Land Use Connection, 2nd edition*. Chicago, IL: American Planning Association. Ch.4 Framework for evaluation and Appendix F. Congestion pricing: case studies.
- * Taylor, Brian D. 2017. Ch.10 The geography of urban transportation finance. In Giuliano & Hanson (2017).

Oct 31 Road Pricing—Equity

- [SLD] Levinson, D. 2010. Equity effects of road pricing: A review. *Transport Reviews* 30: 33-57.
- [SLD] Zhang, W., & Zhang, M. 2017. Incorporating land use and pricing policies for reducing car dependence: Analytical framework and empirical evidence. *Urban Studies*
- * Schwitzer, L. and Brian Taylor. 2008. Just pricing: the distributional effects of congestion pricing and sales taxes. *Transportation* 35: 797-812.

Week 11

Nov 5 Road Pricing—Case Studies

[Progress report due]

- Santos, G. 2008. London congestion charging. *Brookings-Wharton Papers on Urban Affairs*, pp. 177-234.
- [BPP] 3 Best practice presentations on successful road pricing related programs.

Nov 7 No class due to the ACSP Conference

Week 12

Nov 12 Travel Demand Management & Nudge

- Arizona DOT. 2012. *Travel Demand Management: A Toolbox of Strategies to Reduce Single-Occupant Vehicle Trips and Increase Alternate Mode Usage in Arizona*. Final Report 654.
- Thaler, Richard H., and Cass R. Sunstein. 2009. “Biases and Blunders” (Chapter 1). In *Nudge*. New York: Penguin.
- * Garling, T. and G Schuitema. 2007. Travel demand management targeting reduced private car use: Effectiveness, public acceptability and political feasibility. *Journal of Social Issues* 63(1): 139-153.

Nov 14 Travel Demand Management & Nudge—Case Studies

- [SLD] Anagnostopoulou, et al. 2020. From mobility patterns to behavioral change: leveraging travel behavior and personality profiles to nudge for sustainable transportation. *Journal of Intelligent Information Systems* 54, 157-178.
- [BPP] 1-2 Best practice presentations on travel demand management and nudge programs

Week 13

Nov 19 Parking—minimum parking requirement & alternatives

- Manville, Michael and Donald C. Shoup. 2004. People, parking and cities. *Access* 25: 2-8.
- Spivak, J. 2022. A business case for dropping parking minimums. *Planning*.
<https://www.planning.org/planning/2022/spring/a-business-case-for-dropping-parking-minimums/>
- [SLD] Shoup, D. 1999. The trouble with minimum parking requirements. *Transportation Research Part A* 33: 549-574.

[SLD] Sohoni, Srirang, and Bumsoo Lee. 2024. "After the Minimum Parking Requirement." *Journal of the American Planning Association* 0 (0): 1–15. <https://doi.org/10.1080/01944363.2023.2248093>.

* Tian, G., Park, K., Ewing, R., Watten, M., & Walters, J. (2020). Traffic generated by mixed-use developments—A follow-up 31-region study. *Transportation Research Part D: Transport and Environment*, 78.

[BPP] 1-2 *Best practice presentations on successful parking reform and programs.*

Nov 21 Parking—pricing parking

Shoup, D. 2007. Cruising for parking. *Access*, 30, 16-22.

Pierce, Gregory and Donald Shoup. 2013. Getting the prices right. *JAPA* 79 (1): 67-81.

* Gabbe, C. J., & Pierce, G. 2017. Hidden Costs and Deadweight Losses: Bundled Parking and Residential Rents in the Metropolitan United States. *Housing Policy Debate*, 27(2), 217-229.

[BPP] 1-2 *Best practice presentations on successful parking programs.*

Week 14

Fall Break

Week 15

Dec 3 TERM Paper Presentations

Dec 5 TERM Paper Presentations

Week 16

Dec 10 TERM Paper Presentations

Final Paper due on Dec 16 Monday by NOON