

TRANSPORTATION, LAND USE, AND THE ENVIRONMENT
URPL 6555 (3 UNITS)
SPRING 2017

Class meets: Monday, 2:00 – 4:45 p.m.
CU Building Room 320C

Instructor: Assistant Professor Carolyn McAndrews

Office and contact information: CU Building 320BB

carolyn.mcandrews@ucdenver.edu

Phone: (303) 315-1000

Office hours: Tuesdays 12:15-2:15 p.m.
or e-mail to schedule an appointment

1. Course Information

Why do people drive their cars so much? Why is it hard to change auto-oriented development patterns? Despite the health, environmental, and economic benefits of various sustainable transportation alternatives, making these changes is easier said than done. The transportation and land use connection is at the center of this dilemma.

In this course you will learn how and why transportation and land use systems are integral to environmental quality, efficient resource consumption, and quality of life. Topics include green streets, public transit systems and their relationship to development, transportation's role environmental justice, transportation's role in climate change, and the implications of innovative technologies shaping how people live and travel. You will exercise your quantitative skills with household travel data analysis. By the end of the course, you will understand how transportation shapes regions, how people make decisions about where to live and how to travel, and what kinds of sustainable transportation interventions work.

The course is organized as an interactive seminar. Class sessions are used for discussion of readings, in-class exercises, discussion and review of class projects, and other topics of interest.

This is a graduate-level course with no prerequisites. You should be ready to engage with concepts and methods from a variety of disciplines, including city planning, public policy, geography, urban design, engineering, statistics, and economics.

Schedule

Week	Date	Topic	Learning
Part 1: Introduction			
1	Jan 23	Introduction to transportation and land use	Introduction to the course
Part 2: Foundations			
2	Jan 30	Critical environmental issues and debates	Can we reduce automobile dependence?
3	Feb 6	History and economic geography framing	Fundamentals of transportation-land use connections
4	Feb 13	Who governs transportation and land use?	In-class presentations of big drama assignment
Part 3: Travel behavior and trip generation			
5	Feb 20	Travel demand, behavior, mode choice	How do people make decisions about when, why, where, and how to travel?
6	Feb 27	Trip generation, trip distribution, transportation system capacity	Linking land use to traffic and the supply of infrastructure
7	Mar 6	Analyzing travel data to quantify impacts of travel	In-class exercise
Part 4: Transition			
8	Mar 13	Take-home midterm exam	
9	Mar 20	No class, spring break	
Part 5: Planning, policy, and design applications			
10	Mar 27	Transit-oriented development	Limits and potential of neighborhood and transit planning
11	Apr 3	Transportation and environmental justice	The complicated values of auto transport and its externalities
12	Apr 10	Green streets and infrastructure	Streets are for more than travel
13	Apr 17	Transportation technology and climate change	Innovations in fuels, vehicles, land use
14	Apr 24	Information and communication technology	Applied to transportation and travel behavior
15	May 1	Final projects	Poster presentations

Acknowledgements

This syllabus is inspired by and adapted from similar courses taught by Elizabeth Deakin and Martin Wachs.

Attendance

You are expected to attend every class. Attendance is taken at each class using the Roll Call function in Canvas.

You must arrive on time to class to avoid disrupting other students' attention and learning. Arriving up to 10 minutes late to class reduces attendance points for the class session by 50%. If you arrive later than 10 minutes to class, then you may not receive attendance credit for the class session.

This policy applies to all absences.

Readings

You are expected to complete all reading assignments before class. In the syllabus, the readings listed for a given week are due that week. Most course materials will be available electronically. Occasionally, additional materials will be handed out in class.

Readings are intended to familiarize you with a range of current topics. They are a form of self-directed learning, and they prepare you to do group-based learning during class sessions. They bring everyone in the class to the same starting point.

Lectures, Class Discussions, and Exercises

The course is not organized around lectures, although sometimes they may be used. Generally, class time is spent in discussion and exercises, which review and extend the material covered in the readings.

You are expected to be active participants and leaders in these discussions and exercises, and to integrate information from lectures, readings, discussions, and exercises into your assignments.

Most students will be more expert in certain areas than in others because of disciplinary backgrounds and prior experience, but everyone has a lot to learn from one another. You should prepare to share your learning with the class to facilitate peer instruction. Additional readings, meetings with subject-matter experts, or meetings with the instructor during office hours may also help you become more proficient in topics outside of your home discipline.

Communication

Unless otherwise noted, we will use Canvas for all official course communication and it is your responsibility to use Canvas settings that enable reliable communication. For example, this may

mean selecting a personal e-mail address as the default in Canvas. I may use Canvas for course announcements, announcing changes to the schedule and/or syllabus, returning graded assignments, personal communication, or other course-related business. All assignments, unless otherwise noted, must be submitted on Canvas. You should be familiar with Canvas's assignment submission procedures.

Learning Objectives

After completing this course, you will understand major debates, issues, and theories in contemporary land use-transportation planning and policy. You will also have practical knowledge and experience applying these ideas to real transportation and land use concerns.

Per the Planning Accreditation Board's educational outcomes criteria, the course has the following learning objectives:

1. Human settlements and history of planning: understanding the growth and development of places over time and across space.
2. Quantitative and qualitative methods: data collection, analysis and modeling tools for forecasting, policy analysis, and design of projects, policies, and plans.
3. Governance and participation: appreciation of the roles of officials, stakeholders, and community members in planned change.
4. Growth and development: Appreciation of economic, social, and cultural factors in urban and regional growth and change.

Grading Policy

Date Due	Assignment	Points	Proportion
Each class	Attendance	140	0.17
One time	Facilitate class exercise	100	0.12
February 13	Big drama: governance memo	100	0.12
Week of 20 February	Collect your own travel diary data	0	
February 27	Individual travel diary data	0	
March 13	Travel diary memo	200	0.24
March 13	Midterm exam, take-home	150	0.18
May 1	Final project poster + presentations	150	0.18
	Total	840	

Final grades will be based on the total number of points earned.

840-756 = A/A-
755-672 = B+/B/B-
671-588 = C+/C/C-
587-504 = D+/D/D-
503 or below = F

All assignments, unless otherwise noted, must be submitted in PDF format on Canvas by 14:00 on the due date. Please compile multiple pieces of an assignment into a single PDF. You should be familiar with Canvas's assignment submission procedures.

Grading will be based primarily on the quality and depth of the work presented, but organization, composition, presentation, and copy-editing will also be taken into account. For group assignments, the grade will also reflect the number of persons working on the project (i.e., a team of three will be expected to produce a commensurately more detailed and sophisticated analysis than that produced by a team of two).

You are expected to turn in both graded and ungraded assignments on time (see schedule). Out of respect and fairness for all members of the class, extensions will be granted only in the case of an actual emergency. Late assignments lose up to 25 points per day.

Academic Honesty

Education at the University of Colorado Denver and in the College of Architecture and Planning (CAP) depends on honesty and integrity, as well as appropriate conduct. CAP students are required to follow the Student Code of Conduct and the Honor Code. Please refer to [http://www.ucdenver.edu/academics/colleges/ArchitecturePlanning/discover/Documents/HonorCode-Graduate Students-Fall 2009.pdf](http://www.ucdenver.edu/academics/colleges/ArchitecturePlanning/discover/Documents/HonorCode-GraduateStudents-Fall2009.pdf) for details.

All University and College policy, as well as common sense, regarding academic honesty applies in this course. Plagiarism and cheating are not tolerated and will be handled through the University's official process. When working in a group, it is the responsibility of everyone in the group to maintain the norms of academic integrity.

You may do joint work with other courses only with the permission of all instructors and when the work is suitable for the topic and the course.

Accommodations

If you need accommodations, or if you are not sure whether you need accommodations, then you need to contact the Disability Resources and Services Office on campus. See <http://www.ucdenver.edu/student-services/resources/disability-resources-services/accommodations/Pages/accommodations.aspx> for more details.

2. Assignments

The assignments are designed to give you experience analyzing various aspects of transportation and land use planning and policy processes, and they prepare you to participate in transportation decision-making through effective communication.

Assignment 1: Attendance and participation

Due: At each class session

Total points: 140

Class participation traditionally means demonstrating one's knowledge verbally and hiding any evidence of gaps in knowledge, doubts, and questions. These traditional expectations of class participation do not support learning in the classroom. They are particularly difficult for students who are less verbal. Instead, positive participation for this course means having positive externalities on others' learning.

Norms of participation in this course include the following aspects of engagement (adapted from: Lathrop A. 2006. Teaching How to Question: Participation Rubrics. *The Teaching Professor*, 20(2): 4-5):

- **Preparation:** Demonstrate being prepared for class by arriving on time, taking notes, bringing notes and copies of the readings to class, researching unfamiliar or interesting topics found in the readings, and setting an intention for the class meeting.
- **Engagement:** Actively engage with other members of the class in respectful and inclusive discussion and active listening. It is usually more important to listen than to talk. It's also important to engage with people who you perceive as different from you. This means being curious about and open to what other people think and experience.
- **Initiative within a group:** Ask questions during discussion that focus, clarify, and summarize what the group is talking about. Help others express themselves when they have trouble communicating. Create space for shy people. Don't monopolize conversation. In general, try to have a positive effect on other people.
- **Discussion:** Discussion is about increasing collective understanding, not only individual understanding. Successful class discussion requires having compassionate and respectful relationships with peers, and these relationships reflect higher order intellectual and emotional skills (analysis, synthesis, compassion, etc.). In contrast to the traditional classroom, discussion in this class is not about showing other people how much you know.

Assignment 2: Design and lead an in-class exercise

Due: During one class session

Total points: 100

To gain experience in facilitation and group-based approaches to learning, you will work individually or with a partner to design and lead an in-class exercise. You will sign up for the session you want to lead during the first week of class.

A few logistical concerns for designing and facilitating the in-class exercise are:

Prepare for a one-hour exercise.

Link the exercise to the week's readings and topic.

Provide specific learning outcomes for the exercise.

Make it fun, visual, kinesthetic, stimulating.

Design the exercise so that everyone participates and use techniques of facilitation to be sure that everyone does.

Write a brief memo describing your plan and submit before class on the day that you are leading.

Send me an e-mail with your ideas for class at least one week in advance of your session so that we can coordinate.

Grading Rubric: Designing and leading an in-class exercise			
	Excellent	Good	Poor
Preparedness	The facilitator has identified in advance, or has a group process to collectively identify the key learning outcomes for the class session and has prepared the necessary activities and materials to help us achieve these goals (15 points)	The facilitator was prepared, technically, and we had a good time in class, but the elements of the class were not focused on a particular learning outcome or set of outcomes (or goals) (12-14 points)	The facilitator really needed to put more thought into preparing for class (\leq 13 points)
Organization and effectiveness of the class exercise	Even if things did not always go according to plan, we definitely worked with a clear plan for the class session that was designed to help us achieve our goals (30 points)	The class was outlined, but we were winging it for part of the time in a way that didn't work so well (24-29 points)	The class structure or outline was weak and not very effective (\leq 23 points)
Engagement and focus on the needs of the group	We did a range of things in the exercise (listening, diagramming, discussing, thinking, observing, playing) that appealed to our various learning styles and the whole class was engaged and included (30 points)	We did a range of things in class that appealed to our various learning styles, but there were problems engaging the group and including everyone (24-29 points)	The facilitator did not consider the needs of the group when designing the class session and as a consequence it didn't work very well despite our good will toward one another (\leq 23 points)
Total	100 Points	80-99 Points	\leq 79 Points

Assignment 3: Big drama: Transportation and land use governance memo

Due: February 13

Total points: 100

What is at stake in transportation and land use planning? Why is it a controversial topic, and why does it have a reputation for being difficult to coordinate in practice? The purpose of this memo is to become familiar with concrete examples of transportation and land use debates so that our discussions of theory (governance, economics) are more grounded.

First, you will identify a contemporary or historical land use-transportation “big drama” in the Denver region. By drama, I mean a controversial, politically-important issue. Information about these dramas can be found in the popular press, through informational interviews with planners and other professionals, meeting minutes, etc. They often involve revenue (e.g., taxes), land development, spillover effects, and multiple levels of policy or government.

You will prepare a brief memo (no more than one page in length, single spaced) to the class that discusses the “big drama,” and each student will have about five minutes in class to present the case. Focus the presentation on what is interesting and surprising about the case. Do not summarize your memo in the presentation. We will discuss the cases together as concrete examples related to our readings about governance.

The memo should address the following questions: (1) What is the big drama here? What happened? What is at stake? (2) What are the transportation and land use implications of the big drama? And (3) What are the techniques, tools, and institutions (and limitations of these techniques, tools and institutions) available to planners and policy makers to deal with the issue at hand. Refer to the governance readings (and any other relevant readings) in your memo and cite all sources.

Grading Rubric: Big drama memo			
	Excellent	Good	Poor
Clear and organized composition, and well written	Perfect style and copyediting (20 points)	A few minor errors, but not too distracting (19 points)	Needs a thorough revision (≤ 18 points)
Presents a precise, coherent, and thoughtful analysis grounded in concrete examples and details	Makes an argument that is supported by evidence (72-80 points)	Makes assertions that don't quite form an argument, or offers limited support (64-71 points)	Hardly attempts to make an argument, or does not support with evidence (≤ 63 points)
Total	90-100 points	80-89 points	≤ 79 points

Assignment 4: Travel diary data and analysis

Data collection week: February 20-26

Individual data due to Dr. McAndrews: February 27

Dr. McAndrews returns compiled data, in-class exercise: March 6

Final assignment due: March 13

Total points: 150

This assignment has two parts. In the first part, you complete a travel diary for any consecutive five days during the week of February 20 (I will distribute the data collection template prior to this). The data from your weekly activities and travel are due on February 27. I will compile the data that each student collects and will return to you the compiled data set.

You will complete an analysis of your own (or your household's) travel behavior. You will also complete an analysis of the collective travel behavior of the class.

On March 6th, as a class, we will work with the compiled data set, and we will use the data to analyze the impacts of various hypothetical travel choices and scenarios. Everyone should bring a computer to class this day, or arrange to share a computer with a fellow member of the class.

Grading Rubric: Travel diary data and analysis			
	Excellent	Good	Poor
Travel diary data collection	Carefully records data and submits data that can be merged without additional cleaning (20 points)	A few minor problems with format, but no inaccuracies (17-19 points)	Mishandled data collection (≤ 16 points)
Travel analysis (memo and in class)	Follows instructions, answers thoroughly and precisely, and describes methods and assumptions (130 points)	Occasional problems that do not invalidate the answer (124-129 points)	Misuse of concepts, definitions, or data (≤ 123 points)
Total	150 points	140-149 points	≤ 139 points

Assignment 5: Understanding arterial corridors

Due: May 1

Total points: 150

Arterial roads are exemplary of transportation-land use connections. They are a true opportunity for intervening in transportation and land use to make a difference in everyday travel and environmental and public health outcomes.

The purpose of this assignment is to compile case studies that represent innovative contemporary practices in arterial corridor planning and design. These cases should consider the full complement of issues related to street design, land use, road users, traffic operations, governance, and technology. The cases must be based on examples that include empirical evidence of their innovation.

These cases will focus on *one* innovation that you think should be shared widely with transportation practitioners. These case studies may be succinct in their format, but identifying this innovation and communicating why it is important requires you to synthesize the topics covered in this course. You will create one case study (selecting one of the two options, but not both). The instructor may re-assign students to create roughly equal numbers of cases.

Background reading:

1. Vanka, S., S. Handy, K. Kockelman. 2005. "State-Local Coordination in Managing Land Use and Transportation along State Highways." *Journal of Urban Planning and Development*, March 2005, pp. 10-18.
2. Bosselmann, Peter, Elizabeth Macdonald, Thomas Kronemeyer. 1999. "Livable Streets Revisited." *Journal of the American Planning Association*, 65(2):168-180.
3. McAndrews, Carolyn, Josefina Flórez, Elizabeth Deakin. 2006. "Views of the Street: Using Community Surveys and Focus Groups to Inform Context-Sensitive Design." *Transportation Research Record*, 1981:92-99.
4. CDTC Arterial Corridor Management Task Force. 1995. "Development of an Arterial Corridor Management Transportation Strategy for the Capital District Region." December 1995.

For a model of transportation cases see this document:
<http://www.tigurl.org/images/tiged/docs/activities/951.pdf>

The final deliverable has two parts:

- (1) A presentation poster

The poster should include subheadings: Background, The Problem, The Solution, Importance for Planning Arterial Roads, Challenges and Future Opportunities, and References and Resources.

- (2) A memo, no longer than two pages single-spaced, that describes the research methods you used to develop the case, including any field work, informational interviews, data analysis, documentary analysis that you conducted. Include in this memo any technical information that you could not include in the poster because of the limits of its format.

NB 1: This assignment seems simple because of its succinct communication, but it requires 150 points worth of background research, synthesizing information, identifying the most compelling aspect of the most compelling cases, etc. Use the poster to practice clear communication for a general audience, and use the memo to talk about the depth and quality of your information.

NB 2: Assignment option: You may elect to focus your case study on walking and/or bicycling in rural, small, and low-density (RSLD) places, including the complications of multi-modal travel on major roads. All other aspects of the assignment remain the same (e.g., focus on innovation, memo and presentation, etc.)

You will present your case during class on May 1st.

Grading Rubric: Arterial corridor case study			
	Excellent	Fair	Poor
Clear and organized composition, professional presentation of material	Perfect style and copyediting with professional graphical communication (20 points)	A few minor errors, but not distracting, good graphical communication (16-19 points)	Needs a thorough revision (≤ 15 points)
Analysis	The case study does not just describe the innovation, it helps the reader understand it through its analytical presentation (60 points)	The case study is interesting, but it is more descriptive than analytical, which means the audience does not really understand <i>why</i> the case is important (48-59 points)	Hardly attempts to analyze the underlying issues that make the case interesting and important (≤ 47 points)
Interpretation	The case gives the audience insight into what is unique about this case and backs it up with evidence (60 points)	The case was thoroughly interpreted, but does not really get at the question about what might be unique and lacks evidence (48-59 points)	Hardly attempts to interpret the case data (≤ 47 points)
In-class presentation	Clear and focused (10 points)	Effective and satisfactory (8-9 points)	Does not present or is not effective (≤ 7 points)
Total	150 points	120-149 points	≤ 119 points

3. Course Schedule and Readings

Week 1. January 23: Introduction to the course

Questions to guide reading: Why is the transportation and land use connection central to environmental protection, public health, and climate change mitigation? What are some of the various issues involved? What are some ways in which people intervene in the transportation and land use system to bring about positive environmental and behavioral change?

Required readings:

1. US Environmental Protection Agency. 2013. *Our Built and Natural Environments: A Technical Review of the Interactions among Land Use, Transportation, and Environmental Quality*, second edition. EPA 231K13001. Washington, D.C.: US EPA. **Skim the entire report. Read more carefully Chapter 3 for environmental details, Chapter 4 for development strategies.**
2. Schipper, Lee, Ipsita Banerjee, Wei-Shiuen Ng. 2009. "Carbon Dioxide Emissions from Land Transport in India: Scenarios of the Uncertain." *Transportation Research Record*, 2114:28:37.

Week 2. January 30: Critical environmental issues and debates

Questions to guide reading: Why is the transportation-land use question debated? What is the debate about? Based on what you know about urban planning how do you think that planning practices should address the problem of auto dependence?

Required readings:

1. Stevens, Mark R. 2017. "Does Compact Development Make People Drive Less." *Journal of the American Planning Association*, 83(1):7-18.
2. Ewing, Reid and Robert Cervero. 2017. "Does Compact Development Make People Drive Less? The Answer Is Yes." *Journal of the American Planning Association*, 83(1):19-25.
3. Handy, Susan. 2017. "Thoughts on the Meaning of Mark Stevens's Meta-Analysis." *Journal of the American Planning Association*, 83(1):26-28.

Optional reading:

4. Frank, Lawrence, Peter Engelke, and Thomas Schmid. 2003. "Understanding the Built Environment," "Transportation Systems," "Land Use Patterns," and "Urban Design Characteristics" in *Health and Community Design: The Impact of the Built Environment on Physical Activity*. Washington, D.C.: Island Press.

Week 3. February 6: History and economic geography framing

Questions to guide reading: Theories of economics and geography are used to explain the transportation and land use connection as a determinant of urban form. How do market, regulatory, and behavioral forces combine in this complex system?

Required readings:

1. Moore, Terry, Paul Thorsnes, and Bruce Appleyard. 2007. "Market forces in the history of urban land development." In, *The transportation/land use connection*. Chicago, IL: American Planning Association, Planning Advisory Service, 2007. Series: Report Chapter 2.
2. Hayden, Dolores. 2003. "Chapter 8: Edge Nodes," in *Building Suburbia: Green Fields and Urban Growth, 1820-2000*. New York: Vintage Books.
3. Jackson, Kenneth T. 1985. "Chapter 2: The Transportation Revolution and the Erosion of the Walking City," in *Crabgrass Frontier: The Suburbanization of the United States*. New York: Oxford University Press.
4. Gray, David, John Farrington, and Andreas Kagermeier. 2008. "Geographies of Rural Transport," in *Transport Geographies: Mobilities, Flows and Spaces*, Richard Knowles, Jon Shaw and Ian Docherty, eds. Malden, MA: Blackwell Publishing, Ltd.

Optional readings:

5. Pickrell, Don H. 1999. Transportation and land use. In *Essays in transportation economics and policy: A handbook in honor of John R. Meyer*, edited by J. A. Gómez-Ibáñez, W. B. Tye and C. Winston. Chapter 12, pp. 403-435. Washington DC: Brookings Institution Press.

Week 4. February 13: Who governs transportation and land use?

Questions to guide reading: If the transportation and land use connection is so important, why isn't there an organization or institution that can "control" it? Ultimately, how are transportation and land use—as a system—governed? Why is its governance so important?

1. Porter, D. 1991. "Regional Governance: The Missing Link in Relating Land Use and Transportation". Transportation, Urban Form, and the Environment, Transportation Research Board, Special Report 231, pp. 63-80.
2. Weir, Margaret, Jan Rongerude, and Chris K. Ansell. 2009. "Collaboration Is Not Enough: Virtuous Cycles of Reform in Transportation Policy." *Urban Affairs Review*, 44:455-489.
3. Porter, C. 2006. "Coordinating Transportation and Land Use." *ITE Journal*, June 2006:28-32.
4. Lederman, Jaimee and Martin Wachs. 2016. "The Growing Role of Transportation Funding in Regional Habitat Conservation Planning." *Journal of the American Planning Association*, 82(4):350-362.

Optional readings:

5. Barbour, Elisa and Elizabeth Deakin. 2012. "Smart Growth Planning for Climate Protection." *Journal of the American Planning Association*, 78(1):70-86.

Week 5. February 20: Travel demand, behavior, and mode choice

Questions to guide reading: We've discussed governance as a property of the transportation and land use system. Next, we turn to the behavior of households and individuals as another property of the transportation and land use system, one that simultaneously shapes it and emerges from it. What is the role of individual and household behavior in the transportation and land use system?

1. Domencich, Thomas A. and Daniel McFadden. 1975 [1996]. "Ch 1: The Scope and Objectives of Urban Travel Demand Analysis," **and** "Ch 3: A Theory of Individual Travel Demand," in *Urban Travel Demand: A Behavioral Analysis*. New York: North-Holland Publishing Company.
2. McGuckin, Nancy, Johanna Zmud, and Yukiko Nakamoto. 2005. "Trip-Chaining Trends in the United States: Understanding Travel Behavior for Policy Making." *Transportation Research Record*, 1917:199-204.
3. Shirgaokar, Manish. 2014. "Employment centers and travel behavior: Exploring the work commute of Mumbai's rapidly motorizing middle class." *Journal of Transport Geography*, 41:241-258.

Optional reading:

4. Santos, A. N. McGuckin, H.Y. Nakamoto, D. Gray, and S. Liss. 2011. "Summary of Travel Trends: 2009 National Household Travel Survey." FHWA-PL-11-022.
5. Manville, Michael, David A. King, Michael J. Smart. 2017. "The Driving Downturn: A Preliminary Assessment." *Journal of the American Planning Association*, 83(1): 42-55.

Week 6. February 27: Trip generation, trip distribution, and system capacity

Questions to guide reading: So far, we've looked at the complexity of the transportation and land use system. This week, we see it as a deterministic, practical problem of land uses hosting activities, which produce trips, which create demand for infrastructure, which is supplied by the public (and sometimes the private) sector. Does this mean that land use planning is actually transportation planning? Yes. As you do the readings this week, think about the controversies over infill development in Denver and elsewhere. Think about the debates about the local impacts of traffic.

1. Johnston, Robert. 2004. The urban transportation planning process. In *The geography of urban transportation* (ibid), Chapter 5, pp. 86-114.
2. Hamburg, John and Nancy McGuckin. 1987. "A Treatise on Trip Generation."
3. City of McAllen, TX. 2008. "Trip Generation and Traffic Impact Analysis (TIA)." June 6, 2008.

Optional readings:

4. Khattak, Asad J., John Stone, William Letchworth, Ben Rasmusen, and Bastian J. Shroeder. 2004. "Traditional Neighborhood Development Trip Generation Study." Final Report, April 2004.

Week 7. March 6: In-class exercise: Analyzing travel

No readings this week. Instead, prepare the first part of the assignment (the part focusing on your own travel). You will need this as background. During class, we will work together to make decisions about how to clean and code the compiled data, and use this as an opportunity to walk through the concepts and relationships that you're dealing with in the assignment.

Week 8. March 13: Midterm exam, take-home

No readings for this week.

Week 9. March 20: No class, spring break

No class this week; no readings.

Week 10. March 27: Transit-oriented development and neighborhood design

Questions to guide reading: Again, my own opinion, transit is the most complicated of all travel modes. What does it take to support transit through land use?

1. Hank Dittmar with Dena Belzer and Gerald Autler. 2004. An introduction to transit-oriented development. In *The new transit town: Best practices in transit-oriented development*. Washington, DC: Island Press. Chapter 1, pp. 1-18. **AND** Hank Dittmar with Shelley Poticha. 2004. Defining transit-oriented development: The new regional building block. In *The new transit town* (ibid). Chapter 2, pp. 19-41.
2. Dena Belzer, Gerald Autler, Judith Espinosa, Sharon Feigon, and Gloria Ohland. 2004. The transit-oriented development drama and its actors. In *The new transit town* (ibid). Chapter 3, pp. 42-55.
3. Loukaitou Sideris, Anastasia and Tridib Banerjee. 1996. "There's No There There." *Access*, 9:2-6.
4. Dong, Hongwei. 2016. "If You Build Rail Transit in Suburbs, Will Development Come?" *Journal of the American Planning Association*, 82(4):316-326.

Optional readings:

5. Bartlett, Randall. 2003. "Testing the 'popsicle test': Realities of retail shopping in new "traditional neighborhood developments." *Urban Studies* 40 (8):1471-1485.
6. Deakin, Elizabeth. 2010. "Developing a Regional Bus Rapid Transit Network in the New York Metropolitan Area", for the Symposium *Catching the Next Ride: The Potential for Regional Bus Rapid Transit Systems*, New York University, New York, NY, February 24, 2010; published by NYU Press.
7. California Transit Association. 2015. "A Brief History of Transit in California."

Week 11. April 3: Transportation and environmental justice

Questions to guide reading: In addition to the environmental protection arguments for strengthening the TLU connection, there is an equity argument that centers on increasing access to jobs, education, and fundamental activities such as health care. TLU has a part in equity and social justice.

Required readings:

1. Sanchez, Thomas W., Rich Stolz, and Jacinta S. Ma. 2004. "Inequitable Effects of Transportation Policies on Minorities." *Transportation Research Record*, 1885:104-110.
2. Golub, Aaron, Richard A. Marcantonio, Thomas W. Sanchez. 2013. "Race, Space, and Struggles for Mobility: Transportation Impacts on African Americans in Oakland and the East Bay." *Urban Geography*, 34(5):699-728.
3. Krumholz, Norman. 1982. "A Retrospective View of Equity Planning, 1969-1979." *APA Journal*, Spring.

Optional readings:

4. Grengs, Joe, Jonathan Levine, and Qingyun Shen. 2013. "Evaluating Transportation Equity: An Intermetropolitan Comparison of Regional Accessibility and Urban Form."

Week 12. April 10: Green streets and infrastructure

Questions to focus reading: Transportation planning is often part of public works organizations, yet traffic and other public works concerns, such as stormwater and pollution, are not always considered in combination, though there is opportunity to do so. Think about how streets are part of natural environments, and how this perspective would change the goals and practices of traditional transportation planning.

Watch:

"Innovating stormwater management at the neighborhood scale"

<https://www.youtube.com/watch?v=emQ8p6LGBYU>

Read:

1. City and County of Denver. (2016). "Ultra-Green Infrastructure Guidelines."
2. Rodriguez-Valencia, Alvaro. (2013). "Double-Benefit from Green Streets Design: A Life-Cycle Assessment." Transportation Research Board Annual Meeting.

Week 13. April 17: Transportation technology and climate change

Required readings:

1. U.S. Federal Highway Administration. (2013). “Handbook for Estimating Greenhouse Gases for Integration into the Planning Process.” **Deep Skim.**
2. Lipman, Tim. (2009). “Electric Avenue: Electric Vehicles and Smart Grids.” *Traffic Technology International*. February/March 2009.
3. Netherlands Institute for Transport Policy Analysis. (2015). “Driver at the Wheel? Self-Driving Vehicles and the Traffic and Transport System of the Future.”
4. Barbour, Elisa and Elizabeth Deakin. 2012. “Smart Growth Planning for Climate Protection.” *Journal of the American Planning Association*, 78(1):70-86.

Optional reading:

5. Williams, Brett, Elliot Martin, Timothy Lipman, Daniel Kammen. (2011). “Plug-in-Hybrid Vehicle Use, Energy Consumption, and Greenhouse Gas Emissions: An Analysis of Household Vehicle Placements in Northern California.” *Energies*, 4: 435-457.

Week 14. April 24: Information and communication technologies and travel

Questions to guide reading: In the most general sense, transportation is a specific form of communication that takes place over time and space. Information and communications technologies affect our time-space problem—when we order books from the Internet instead of walking to the bookstore, we transfer our time-space problem to the book seller and freight providers. We don’t make that trip. The same holds true for online classes, telephone calls, e-mails, and so forth. How do these technologies change the nature of the transportation and land use problem, if at all?

1. Mokhtarian, Pat. 2009. “If telecommunication is such a good substitute for travel, why does congestion continue to get worse?” *Transportation Letters*, 1:1-17.
2. McDonald, Noreen. 2015. “Are Millennials Really the ‘Go-Nowhere’ Generation?” *Journal of the American Planning Association*, 81(2):90-103.
3. van Wee, Bert. 2015. “Peak car: The first signs of a shift towards ICT-based activities replacing travel? A discussion paper.” *Transport Policy*, 42:1-3.

Week 15. May 1: Final project poster presentations

No readings this week.