

URP 544, STL 544, END 544

Transportation and Regional Planning for an Uncertain Future

Spring 2020

Lecture classes: THURS 12:00 PM - 2:40 PM
Room: Hayes 217

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Prerequisite(s): Graduate standing

Course web site: UBlerns Blackboard, <https://ublearns.buffalo.edu/>

Catalog Description: Transportation and Urban Planners are faced with significant challenges. Unlike any period in recent history, great uncertainty surrounds transportation technology and environmental conditions. Many legitimate outcomes can be formulated but it is a fool's errand to endorse any single path forward in the face of uncertainty. Extrapolating past trends is certain to produce flawed plans.

A new planning paradigm is required that explicitly adopts uncertainty into the planning process.

The backbone of that process is the formulation and adoption of scenario plans. This course will provide sufficient information to provide a range of potential planning assumptions and students will formulate scenario-based transportation and urban plans

Course Objectives: A detailed survey of current and emerging events will be provided through lectures and students’ own explorations. Interactive group exercises will frequently be used to explore assumptions and formulate a variety of scenarios that conform to planning assumptions. Dimensions include the degree of transportation automation, whether shared or individually owned, and a series of environmental assumptions across demographics and the climate. Government policy will be another important dimension.

Group exercises will be used to formulate scenario plans. A final project will focus on different potential outcomes for city plans including transportation and land use for Buffalo NY in pre-define geographic areas.

Student Learning Outcomes: Discussion and analyses of current events and scenario plans are at the core. Presentation skills will be enhanced through presentations, classroom discussion, and group exercises. Upon successful completion of the course, students will be able to understand, practice, apply, and articulate the following across the topics listed below:

Student Learning Outcomes	Assessment Tools
1. Scenario planning structure and processes	Preparation and class participation, exams and presentations
2. Scenario planning dimensions across transportation, demographics, and the environment	Preparation and class participation, exams and presentations
3. Emerging transportation technology – connected and autonomous vehicles	Preparation and class participation, exams and presentations
4. Emerging transportation technology – electric vehicles, and other new modes	Preparation and class participation, exams and presentations
5. Demographic and environmental possibilities as inputs into the planning process	Preparation and class participation, exams and presentations
6. Scenario formulation under uncertainty	Preparation and class participation, exams and presentations
7. Transportation and land use planning in a scenario driven context	Preparation and class participation, exams and presentations

Eligibility

Graduate students of Architecture, Planning, Engineering/ISTL, and others by permission of the instructor.

Evaluation and Work Expectations

WORK EXPECTATIONS	Points
Class discussion leadership	10
Class discussion participation	20
Midterm Exam	20
Final Project	30
Final Exam	20

Grade Descriptions

In addition to the basic grade levels described below, plus/minus (+ / -) grades will also be used. Grading will be decided as follows:

- 93-100 A (exceptional contribution)
- 90-92 A-
- 87-89 B+
- 83-86 B (substantial contribution)
- 80-82 B-
- 77-79 C+
- 73-76 C (average contribution)
- 70-72 C-
- 67-69 D+
- 63-66 D (poor contribution)
- 60-62 D-

I: Excused Incomplete. A grade of incomplete ("I") indicates that additional course work is required to fulfill the requirements of a given course. Students may only be given an "I" grade if they have a passing average in coursework that has been completed and have well-defined parameters to complete the course requirements that could result in a grade better than the default grade. An "I" grade may not be assigned to a student who did not attend the course. Prior to the end of the semester, students must initiate the request for an "I" grade and receive the instructor's approval. Assignment of an "I" grade is at the discretion of the instructor. More info is available at: <http://undergrad-catalog.buffalo.edu/policies/grading/explanation.shtml#incomplete>

ALL GRADES ARE SUBJECT TO DEDUCTIONS FOR ABSENCES, LATE WORK AND LATE ARRIVALS.

STATEMENT OF ACADEMIC INTEGRITY

Academic integrity is a fundamental university value. Through the honest completion of academic work, students sustain the integrity of the university while facilitating the university's imperative for the transmission of knowledge and culture based upon the generation of new and innovative ideas.

Each student in this course is expected to abide by the University at Buffalo's Code of Academic Integrity. Plagiarism is a serious offence, and we encourage you to read and become familiar with the University's Code of Academic Integrity (<http://undergrad-catalog.buffalo.edu/policies/course/integrity.shtml>). Any work submitted by a student in this course for academic credit will be the student's own work. Electronic submission of work will be required, and detection software will be used as an aid in determining originality of student work.

Students are encouraged to discuss information and concepts covered in lectures and the sections with other students. Students can give or receive "consulting" help to or from such students. Any submitted work, however, should be original. Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a failing grade for the assignment. Penalty for violation of this Code can also be extended to include failure of the course and University disciplinary action

ACCESSIBILITY RESOURCES

In compliance with the University policy, your instructor is available to discuss appropriate academic individuals with disabilities can access and benefit from all programs, services, and activities of the university. A variety of different accommodations are available to address the needs of people with disabilities at UB. For more information, please see: <http://www.student-affairs.buffalo.edu/ods/request> or contact Accessibility Resources, 60 Capen Hall, 716-645-2608

Accommodations that may be required for a student with disabilities (physical, learning or psychological). Students are encouraged to register with the UB's office of Accessibility Resources (AR) to verify their eligibility for appropriate accommodations and present the instructor with their letters of accommodation. Requests for academic accommodations are to be made during the first week of the semester. UB's office of Accessibility Resources (AR) coordinates reasonable accommodations.

MENTAL HEALTH RESOURCES

As a student you may experience a range of issues that can cause barriers to learning or reduce your ability to participate in daily activities. These might include strained relationships, anxiety, high levels of stress, alcohol/drug problems, feeling down, health concerns, or unwanted sexual experiences. Counseling, Health Services, and Health Promotion are here to

help with these or other concerns. You learn can more about these programs and services by contacting:

Counseling Services:

120 Richmond Quad (North Campus), phone 716-645-2720

202 Michael Hall (South Campus), phone: 716-829-5800

Health Services:

Michael Hall (South Campus), phone: 716- 829-3316

Health Promotion: 114 Student Union (North Campus), phone: 716- 645-2837

SEXUAL HARASSMENT AND VIOLENCE

UB is committed to providing a safe learning environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic and dating violence and stalking. If you have experienced gender-based violence (intimate partner violence, attempted or completed sexual assault, harassment, coercion, stalking, etc.), UB has resources to help. This includes academic accommodations, health and counseling services, housing accommodations, helping with legal protective orders, and assistance with reporting the incident to police or other UB officials if you so choose. Please contact UB's Title IX Coordinator at 716-645-2266 for more information. For confidential assistance, you may also contact a Crisis Services Campus Advocate at 716-796-4399.

Please be aware UB faculty are mandated to report violence or harassment on the basis of sex or gender. This means that if you tell the instructor(s) about a situation, they will need to report it to the Office of Equity, Diversity and Inclusion. You will still have options about how the situation will be handled, including whether or not you wish to pursue a formal complaint. Please know that if you do not wish to have UB proceed with an investigation, your request will be honored unless UB's failure to act does not adequately mitigate the risk of harm to you or other members of the university community. You also have the option of speaking with trained counselors who can maintain complete confidentiality. UB's Options for Confidentially Disclosing Sexual Violence provides a full explanation of the resources available, as well as contact information. You may call UB's Office of Equity, Diversity and Inclusion at 716-645-2266 for more information, and you have the option of calling that office anonymously if you would prefer not to disclose your identity.

Course Schedule

WEEK 1 (30-Jan): Class Introduction / Logistics/ Introduction to Scenario Planning

WEEK 2 (6-Feb): Scenario Planning continued: Structure and Process, and Examples

Topics:

1. Scenario Planning structure and process
2. In-class exercise: In small groups, analyze a scenario plan example and present to the class

READING ASSIGNMENTS (for Feb 6):

1. APA "How to Design Scenario Planning" (2019)
2. Chakraborty, A., & McMillan, A. (2015). Scenario planning for urban planners: Toward a practitioner's guide. *Journal of the American Planning Association*, 81(1), 18-29.
3. (Scan) FHWA. Next Generation of Scenario Planning. (2017)
4. Review Scenario Planning examples:
 - a. Bay Area http://2040.planbayarea.org/sites/default/files/2017-07/Scenario_Planning_PBA2040_Supplemental%20Report_7-2017.pdf and <https://www.planbayarea.org/2040-plan/plan-details/scenarios>
 - b. Mid-America Regional Council (Kansas City): <https://www.marc.org/Regional-Planning/Creating-Sustainable-Places/Plans/Scenario-Planning>
 - c. Toronto Metrolinx *Navigating Uncertainty* (pdf)
5. Abbott, J. Understanding and Managing the Unknown: The Nature of Uncertainty in Planning. *Journal of Planning Education and Research* 2005; 24; 237 DOI: 10.1177/0739456X04267710
6. Review APA Knowledgebase Collection: Scenario Planning <https://www.planning.org/knowledgebase/scenarioplanning/>
7. Review Consortium for Scenario Planning site: <http://www.scenarioplanning.io/>

WEEK 3 (13-Feb): Emerging Transportation and Urban Technology: Autonomous Vehicles

Topics:

1. Discussion on readings (led by Group 1)
2. Connected and Autonomous vehicle technology overview

READING ASSIGNMENTS:

1. NACTO Blueprint for Autonomous Urbanism <https://nacto.org/publication/bau2/>

2. Taming the Autonomous Vehicle: A Primer for Cities. The Aspen Institute
<https://www.bbhub.io/dotorg/sites/2/2017/05/TamingtheAutonomousVehicleSpreadsPDF.pdf>
3. Zegras, C., Sussman, J., & Conklin, C. (2004). Scenario planning for strategic regional transportation planning. *Journal of Urban Planning and Development*, 130(1), 2-13.
4. Milakis, D., Van Areem, B., & Van Wee, B. (2017). Policy and society related implications of automated driving: A review of literature and directions for future research. *Journal of Intelligent Transportation Systems*, 21(4), 324-348.
5. Choose at least one:
 - a. Flint, A. April 22, 2019. We're redesigning our streetscape — but what if we're getting it all wrong? *Boston Globe*.
<https://www.bostonglobe.com/ideas/2019/04/22/redesigning-our-streetscape-but-what-getting-all-wrong/BvTM8jIcbTSOOeWrJuOuXI/story.html>
 - b. *Land Matters Podcast Episode 7: Designing the Future City* (17 mins)
<https://www.lincolnst.edu/publications/articles/2019-podcast-designing-future-city>

WEEK 4 (20-Feb): Emerging Transportation and Urban Technology: Vehicles (continued) Smart Cities and Smart Mobility

Topics:

1. Discussion on readings (led by Group 2)
2. Smart Cities
3. Smart Mobility
4. Guest speaker: Brittany Perez, [UB Idea Center](#)

READING ASSIGNMENTS:

1. Review Shared Use Mobility Center website <https://learn.sharedusemobilitycenter.org/>
2. (Scan) Transportation for America's [Shared Micromobility Playbook](#)
3. (Scan) Seattle New Mobility Playbook
https://www.seattle.gov/Documents/Departments/SDOT/NewMobilityProgram/NewMobility_Playbook_9.2017.pdf
4. Batty, M. (2013). Big data, smart cities and city planning. *Dialogues in Human Geography*, 3(3), 274-279.
5. Townsend, A. (2013). Smart cities: Buggy and brittle. *Places Journal*.
<https://placesjournal.org/article/smart-cities/>
6. National League of Cities *Trends in Smart City Development* (2016)
7. Coletta, A. May 7, 2019. Quayside, Toronto's Google-linked smart city, draws opposition over privacy, costs. *Washington Post*.
https://www.washingtonpost.com/world/the_americas/quayside-torontos-google-linked-smart-city-draws-opposition-over-privacy-costs/2019/05/05/e0785500-6d12-11e9-bbe7-1c798fb80536_story.html
8. (Scan) Smart Columbus Playbook website <https://smart.columbus.gov/playbook>

9. (Scan) Edmonton *Smart City Strategy* and website
https://www.edmonton.ca/city_government/initiatives_innovation/smart-cities.aspx

WEEK 5 (27-Feb): Final Project Definition and Process

1. Final Project description and examples
2. Introduction to software aides including “Envision Tomorrow” software
3. Discussion of project next steps among groups

WEEK 6 (5-Mar): Potential Environmental Outcomes

1. AVs, EVs and environmental sustainability
2. Climate change outcomes and implications

READING ASSIGNMENTS:

1. TBD

WEEK 7 (12-Mar): Uncertain Demographic and Land Use Futures, the Role of Regulations, and a Scenario Development Exercise for Western New York

Topics:

1. Discussion on readings (population, demographics and land use; led by Group 3)
2. Uncertain future population and demographics
3. Uncertain effects on future land use
4. Policies and regulations to shape the future
5. In-class exercise to visualize different outcomes for WNY/Buffalo

READING ASSIGNMENTS:

1. Population modeling background
 - a. (Scan) US Census Bureau (2017). Methodology, Assumptions, and Inputs for the 2017 National Population Projections. <https://www2.census.gov/programs-surveys/popproj/technical-documentation/methodology/methodstatement17.pdf>
2. Demographic shifts
 - a. Garikapati, V. M., Pendyala, R. M., Morris, E. A., Mokhtarian, P. L., & McDonald, N. (2016). Activity patterns, time use, and travel of millennials: a generation in transition?. *Transport Reviews*, 36(5), 558-584.
 - b. Aging in Place, Stuck without Options: Fixing the Mobility Crisis Threatening the Baby Boom Generation <https://t4america.org/docs/SeniorsMobilityCrisis.pdf>
3. Land Use:
 - a. Hollander, J. B., & Németh, J. (2011). The bounds of smart decline: A foundational theory for planning shrinking cities. *Housing Policy Debate*, 21(3), 349-367.

- b. Scruggs, G. (2020). The Unmalling of America. *Land Lines*, January 2020. <https://www.lincolnst.edu/sites/default/files/pubfiles/unmalling-of-america-lla200105.pdf>
- c. Hughes, J. et al (2020) "Urbs," "burbs," and the immigration locomotive: an analysis of economic, demographic and market trends. *Rutgers Regional Report* (41). <http://dx.doi.org/doi:10.7282/t3-243a-p736>
4. WNY Background:
 - a. (Scan) One Region Forward plan <http://www.oneregionforward.org/the-plan/>
 - b. (Scan) Moving Forward 2050 <https://www.gbnrtc.org/movingforward2050>
 - c. Renn, A. (2015). Reinventing Buffalo. *City Journal* <https://www.city-journal.org/html/reinventing-buffalo-14115.html>
 - d. \$2.2B conversion of Summit Mall into 'stop-and-stay' destination begins <https://buffalonews.com/2020/02/07/canadian-developer-plans-2-2b-conversion-of-summit-mall-into-sports-entertainment-destination/>
 - e. Manufacturers eager to welcome refugees to their workforces <https://buffalonews.com/2020/01/26/prospectus-manufacturers-welcome-refugees-to-the-workforce/>
 - f. M&T's 'transformative' tech hub taking shape in Seneca One tower <https://buffalonews.com/2019/11/26/mts-transformative-tech-hub-starts-to-take-shape-in-seneca-one-tower/>
 - g. Jemal works to land brewery, more tenants for Seneca One <https://buffalonews.com/2020/02/14/jemal-works-to-land-brewery-more-tenants-for-seneca-one/>
 - h. Buffalo Advocates Convince New York DOT to Rethink a Half-Baked Highway Removal <https://usa.streetsblog.org/2018/01/09/buffalo-advocates-convince-new-york-dot-to-rethink-a-half-baked-highway-removal/>

WEEK 8 (19-Mar): SPRING BREAK

WEEK 9 (26-Mar): Midterm

WEEK 10 (2-Apr): Transportation and Local Planning Organizations Perspectives

Topics:

1. One Region Forward (Guest speakers: Kelly Dixon, GBNRTC and Brian Conley, UB Regional Institute)
2. Regional travel modelling: Matt Grabau, GBNRTC
3. Erie County Department of Environment and Planning (invited)
4. Group projects work session (time permitting)

READING ASSIGNMENTS: (for April 2)

1. Review One Region Forward scenario planning background
<http://www.oneregionforward.org/the-plan/scenario-planning-community-congress-workshops/>
2. Scan Erie County Climate Action Plan
http://www2.erie.gov/environment/sites/www2.erie.gov.environment/files/uploads/FINAL_CASP_2019.pdf
3. Hartgen, D.T. "Hubris or humility? Accuracy issues for the next 50 years of travel demand modeling" *Transportation* (2013) 40: 1133. <https://doi.org/10.1007/s11116-013-9497-y>
4. Mokhtarian, P. L. (2018). The Times They Are A-Changin': What Do the Expanding Uses of Travel Time Portend for Policy, Planning, and Life?. *Transportation Research Record*, 2672(47), 1-11.

WEEK 11 (9-Apr): Decision-making Under Uncertainty and Stakeholder Engagement

Topics:

1. Discussion on readings (led by Group 4)
2. The psychology of decision-making under uncertainty
3. Stakeholder engagement to implement scenario planning
4. Group projects work session (time permitting)

READING ASSIGNMENTS:

1. The psychology of decision-making under uncertainty:
 - a. Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science*, 185(4157), 1124-1131.
 - b. Hammond, J. S., Keeney, R. L., & Raiffa, H. (1998). The hidden traps in decision making. *Harvard Business Review*, 76(5), 47-58.
 - c. Platt, M. L., & Huettel, S. A. (2008). Risky business: The neuroeconomics of decision making under uncertainty. *Nature Neuroscience*, 11(4), 398.
2. Stakeholder engagement to implement scenario planning
 - a. International Association for Public Participation Spectrum of Public Participation (pdf)
 - b. Johnson, M. L., Bell, K. P., & Teisl, M. F. (2016). Does reading scenarios of future land use changes affect willingness to participate in land use planning?. *Land Use Policy*, 57, 44-52.
 - c. (Scan) Chicago Metropolitan Agency for Planning. Nd. Invent the Future: Report of GO TO 2040 Public Engagement Phase, May to September 2009. (pdf) and review website <https://www.cmap.illinois.gov/about/2040/supporting-materials/process-archive/scenario-evaluation/invent>
 - d. Envision Utah. Nd. Mapping the Course for Successful Community Engaged Scenario Planning (pdf)
 - e. Arvin, et al (2014). Equity in Scenario Planning (pdf)

WEEK 12 (16-Apr): The Future of Scenario Planning and Work Session for Projects

Topics:

1. Scenario Planning: opportunities and limitations
2. Group projects: 5-7 minute presentation to the class, with feedback/Q&A

READING ASSIGNMENTS:

1. Goodspeed, R. (2017). *Evaluation Framework for the Use of Scenarios in Urban Planning*. Lincoln Institute of Land Policy.
2. Polasky, S., Carpenter, S. R., Folke, C., & Keeler, B. (2011). Decision-making under great uncertainty: environmental management in an era of global change. *Trends in ecology & evolution*, 26(8), 398-404.
3. Hexter, K. W., & Kaufman, S. (2017). Planning without agency: Vibrant NEO 2040. *Cityscape*, 19(3), 135-162.

WEEK 13 (23-Apr): Final Project Presentations

WEEK 14 (30-Apr): Final Project Presentations

WEEK 15 (7-May): Final Exam