

THE OHIO STATE UNIVERSITY

City and Regional Planning

2007

Viton

Winter Quarter

Professor Philip A.

City and Regional Planning 776 —xIntroduction to Transportation Planning

Credits: 3 hours
Sequence No.: 04812-2
Meeting: 175 Knowlton Hall
Time: Thursday 11:30 – 1:20

Instructor's Office: 296 Knowlton Hall
Office Hours: Thursday, 2:00 – 4:00 pm or by appointment
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1 Course Description and Objectives

This course is an elementary introduction to concepts and issues in urban transport planning, presenting a broad overview of our current knowledge, and introducing students to methods used in applying that knowledge.

By the conclusion of the course the student will have developed an understanding of :

the organization of urban transport in the US, including its history and finance

the physical characteristics of the highway system and of the principal modes of urban transport

the main determinants of travel demand, and how to use statistical packages to study those determinants

the principal negative impacts of patterns of travel, and the costs they impose on the community

the principles of investment in transportation infrastructure; the comparative costs of the various modes

If time and interest permit, we may also look at a couple of additional issues:

understanding the behavior of public institutions connected with urban transportation

assessing efficiency in transportation provision

Course Organization

Lectures.

Evaluation

The only requirement for the class is a paper, which can be on any aspect of transportation (not necessarily on a topic covered in class). The principal constraint here is that the paper *must contain a contribution of your own*: a paper which simply repeats or summarizes someone else's work is not acceptable. (However, the paper could be an intelligent, *original* critique of someone else's work).

The paper is due on my mailbox in Knowlton 200 (the main office on the second floor) by noon on the Wednesday of Exam Week. No late papers will be accepted.

Course Website

I've set up a small website for the course at <http://facweb.knowlton.ohio-state.edu/pviton/courses2/crp776>

There may be occasional notes posted there (these will also be announced in class). One feature of the website is that there will be HTML and PDF copies of the syllabus, with live links to those readings which may be found on-line.

Course Outline and Reading List

Copies of readings will be available in the KSA Library in the C&RP 776 Oblique File: ask at the Circulation Desk. Remember that the online copies of the syllabus on the course website (see above) have live links to those materials which are available on-line.

2 Introduction

Overview of the state of transportation and urban transportation in particular: institutions, mode shares, trip purposes, transport finance.

MichaelxD. Meyer and EricxJ. Miller. *Urban Transportation Planning: A Decision-Oriented Approach*. McGraw-Hill Book Company, New York, NY, 1984, Chs. 1, 2.

KennethxD. Boyer. *Principles of Transportation Economics*. Addison Wesley Longman, Inc., Reading, Mass., 1997, Ch. 1.

VukanxR. Vuchic. *Urban Public Transportation: Systems and Technology*. Prentice-Hall, Englewood Cliffs, N.J., 1981, Ch.1

CliffordxM. Winston and Chad Shirley. *Alternate Route: Toward Efficient Urban Transportation*. Brookings Institution, Washington D. C., 1998, Ch. 2.

3 Some Recent Issues

Johnx F. Kain. "The urban transportation problem: A reexamination and update". In Jose Gomez-Ibanez, Williamx B. Tye, and Clifford Winston, editors, *Essays in Transportation Economics and Policy*, pages 359–402. Brookings Institution Press, Washington, D. C., 1999.

ebook version: http://www.netlibrary.com/ebook_info.asp?product_id=4905

Don Pickrell. "Transportation and land use". In Jose Gomez-Ibanez, Williamx B. Tye, and Clifford Winston, editors, *Essays in Transport Economics and Policy*, pages 403–436. Brookings Institution Press, Washington D. C., 1999.

ebook version: http://www.netlibrary.com/ebook_info.asp?product_id=4905

Maureen O'Regan and Johnx M. Quigley. "Accessibility and economic opportunity". In Jose Gomez-Ibanez, Williamx B. Tye, and Clifford Winston, editors, *Essays in Transport Economics and Policy*, pages 437–468. Brookings Institution Press, Washington D. C., 1999.

ebook version: http://www.netlibrary.com/ebook_info.asp?product_id=4905

4 The Highway Network

Classification of roads; introduction to models of traffic flow; construction and maintenance costs.

E.x K. Morlok. *Introduction to Transportation Engineering and Planning*. McGraw-Hill, New York, 1978, Ch. 5.

Kennethx D. Boyer. *Principles of Transportation Economics*. Addison Wesley Longman, Inc., Reading, Mass., 1997, Ch. 6, (read pp. 127–133).

Kennethx A. Small, Cliffordx M. Winston, and Carol Evans. *Road Work*. The Brookings Institution, Washington, D.C., 1989, Chs. 2, 3.

5 Vehicle Characteristics

Overview of physical characteristics of urban transport vehicles: speeds, energy usage, capacities, costs.

VukanxR. Vuchic. *Urban Public Transportation: Systems and Technology*. Prentice-Hall, Englewood Cliffs, N.J., 1981, Ch. 2.

KennethxD. Boyer. *Principles of Transportation Economics*. Addison Wesley Longman, Inc., Reading, Mass., 1997, Ch. 7.

E.xK. Morlok. *Introduction to Transportation Engineering and Planning*. McGraw-Hill, New York, 1978, Ch. 9.

6 Traffic Congestion

Traffic congestion is widely perceived to be the principal problem of urban transportation.

KennethxD. Boyer. *Principles of Transportation Economics*. Addison Wesley Longman, Inc., Reading, Mass., 1997, Ch. 10.

Herbert Mohring. "Congestion". In Jose Gomez-Ibanez, WilliamxB. Tye, and Clifford Winston, editors, *Essays in Transportation Economics and Policy*, pages 181–222. Brookings Institution Press, Washington, D.C, 1999.

ebook version: http://www.netlibrary.com/ebook_info.asp?product_id=4905

TheodorexE. Keeler and KennethxA. Small. "Optimal peak-load pricing, investment and service levels on urban expressways". *Journal of Political Economy*, 85(1):1–25, 1977.

j-stor version: [Click here](#)

"Managing Our Mobility as We Grow": selected materials from Columbus Congestion Summit, 2000.

Philip A. Viton: "Congestion: An Economist's View", working paper, 2000.

7 Air Pollution, Noise, Developmental Impacts of Urban Transport

Other impacts of urban transportation.

Kennethx A. Small and Camilla Kazimi. "On the costs of air pollution from motor vehicles". *Journal of Transport Economics and Policy*, 29:7–32, January 1995

Kennethx D. Boyer. *Principles of Transportation Economics*. Addison Wesley Longman, Inc., Reading, Mass., 1997, Ch. 14, pp. 375–397

E.x K. Morlok. *Introduction to Transportation Engineering and Planning*. McGraw-Hill, New York, 1978, Ch. 13.

Arnoldx M. Howitt and Alan Altshuler. "The politics of controlling air pollution". In Jose Gomez-Ibanez, Williamx B. Tye, and Clifford Winston, editors, *Essays in Transportation Economics and Policy*, pages 223–256. Brookings Institution Press, Washington D.C., 1999.
ebook version: http://www.netlibrary.com/ebook_info.asp?product_id=4905

8 Urban Travel Demand

T.x Domencich and D.x McFadden. *Urban Travel Demand: A Behavioral Analysis*. North-Holland, New York, 1975, Chs. 3, 4.
An online version is available from McFadden's site at UC Berkeley.

Kennethx A. Small and Clifford Winston. "The demand for transportation: Models and applications". In Jose Gomez-Ibanez, Williamx B. Tye, and Clifford Winston, editors, *Essays in Transportation Economics and Policy*, pages 11–56. Brookings Institution Press, Washington, D.C., 1999.
ebook version: http://www.netlibrary.com/ebook_info.asp?product_id=4905

Philip A. Viton, "Getting Started With Limdep for Windows", working paper, 2004.

9 Investment in Urban Transport Facilities

Principles for the determination of appropriate levels for investment in roads, vehicles, and systems; long-range planning; comparative costs.

Michaelx D. Meyer and Ericx J. Miller. *Urban Transportation Planning: A Decision-Oriented Approach*. McGraw-Hill Book Company, New York, NY, 1984, Ch. 9.

Kennethx D. Boyer. *Principles of Transportation Economics*. Addison Wesley Longman, Inc., Reading, Mass., 1997, Ch. 9.

E.x K. Morlok. *Introduction to Transportation Engineering and Planning*. McGraw-Hill, New York, 1978, Ch. 15

Theodorex E. Keeler, Kennethx A. Small, Philipx A. Viton, Leonardx A. Merewitz, and Randallx J. Pozdena. "The full costs of urban transport, III". Monograph 21, Institute of Urban and Regional Development, University of California, Berkeley, 1975

10 Institutional Behavior

Understanding the determinants of the decisions of public bodies concerned with urban transportation.

Daniel McFadden. "The revealed preferences of a government bureaucracy: Empirical evidence". *Bell Journal of Economics*, 7(1):55–72, 1976.
j-stor version: [click here](#)

Cliffordx M. Winston and Chad Shirley. *Alternate Route: Toward Efficient Urban Transportation*. Brookings Institution, Washington D. C., 1998, Ch. 5.

11 Efficiency Modelling

Are transit operators getting the most output for their inputs and/or using the fewest inputs to produce their actual outputs?

The linear programming approach:

Tim Coelli, D.S. Prasada Rao, and George E. Battese. *An Introduction to Efficiency and Productivity Analysis*. Kluwer Academic Publishers, Boston/Dordrecht/London, 1998, Ch. 6

R. Fare, S. Grosskopf, and C.A.K. Lovell. *Production Frontiers*. Cambridge University Press, Cambridge, 1994, Chs 3,4 (advanced).

The statistical / econometric approach:

Tim Coelli, D.S. Prasada Rao, and George E. Battese. *An Introduction to Efficiency and Productivity Analysis*. Kluwer Academic Publishers, Boston/Dordrecht/London, 1998, Ch. 8

Subal C. Kumbhakar and C.A.K. Lovell. *Stochastic Frontier Analysis*. Cambridge University Press, Cambridge, U.K., 2000, Ch. 3 (advanced).

W.H. Greene. "The econometric approach to efficiency analysis". In H.G. Fried, C.A.K. Lovell, and S.S. Schmidt, editors, *The Measurement of Productive Efficiency*, pages 68–119. Oxford University Press, Oxford, 1993 (advanced).