Course Description and Objectives

This course is an introduction to transportation policy issues, primarily in the urban economy. By the completion of the course, students will:

- Understand the problem of urban traffic congestion and some of its solutions.
- Understand the problem of road maintenance and its solutions.
- Understand the principles of the provision of highway capacity.
- Understand the impact of air pollution caused by transportation vehicles.
- Understand the principles of modelling modal choice by individuals.
- Understand the history of transportation in the US.
- Understand the appropriate role of public transportation in the urban economy.
- Understand how planners go about evaluating large-scale transportation projects.

Prerequisites

First-year calculus (differentiation); Economics 200 (basic microeconomics) or equivalent; Statistics 135 or equivalent. If you doubt your preparation, please see the instructor.
Course Organization and Evaluation

Lectures.

The only requirement for the course is a term paper, which can be on any transportation-related topic, whether covered in class or not. The paper should be at least 10 pages long — longer is acceptable, of course — and should be professionally formatted, with appropriate citations and footnotes. **The paper is due in my mailbox in KH 200 (or by email in either pdf or Microsoft Word format) by 4pm on Monday, April 21, 2013** (the last day of classes). Late papers will be penalized in grading.

Required deliverable: In class on Friday, February 14 or by email by the end of the class session (this is the end of week 5 of classes): a 2+ page description of your intended paper topic and how you intend to go about addressing that topic. This will not count against your class grade unless you do not turn it in, in which case it will result in a 1-category grade reduction. The description should be in a narrative form, not a bullet-point outline. I will read it carefully, both for content and form, to give you some feedback.

Texts

None: all our work will be from readings. All materials will be available for download from the course website.

Course Websites

I have established a small website for the course. Address: [http://facweb.knowlton.ohio-state.edu/pviton/courses2/crp4700/index.html](http://facweb.knowlton.ohio-state.edu/pviton/courses2/crp4700/index.html). This contains versions of the syllabus in which all links are “live”: you may wish to bookmark the location.

I’ll put general course announcements and copies of all materials distributed in class there.

There is also a restricted website, access of which is limited to students registered for the course. Its address is [http://facweb.knowlton.ohio-state.edu/pviton/courses/crp4700/index.html](http://facweb.knowlton.ohio-state.edu/pviton/courses/crp4700/index.html). If you are a KSA student (and can log onto the KSA lab computers) you can access this site by providing your KSA login name and password when it is requested of you. (If your login does not work, try prefacing your login name with knowlton\ : thus, eg, knowlton\jdoe). If you are not a KSA student, we will provide temporary access (a temporary login name and password) for you, valid for this semester only: see me for a signup form. The KSA IT staff will send you details (login name and password) via email when your request has been processed. If anyone has problems accessing the restricted site, please consult the IT staff on the 4th floor of Knowlton Hall. If that fails to resolve the problem, please let me know.

Email

I filter spam aggressively; the downside is that I may accidentally delete real mail. You can minimize the chances of this happening when sending me email by (1) making sure that the From field uses your
osu.edu address, and (2) including CRP (or C&RP) somewhere in the subject line. If I still don’t answer in
a day or two, please ask me about it.

**Academic Misconduct**

OSU expects that all students will understand and abide by the following standards relating to academic
misconduct. In particular, solutions to any problem sets and exams should be each student’s own indepen-
dent work. Any deviation from this requirement constitutes an act of academic misconduct and will be taken
extremely seriously.

OSU defines academic misconduct “as any act that undermines the academic integrity of the
University or subverts the educational process. It includes plagiarism and dishonest practices
associated with examinations as well as any other form of misconduct associated with academic
work or grading. Plagiarism is the act of taking ideas, writings, or drawings of another and
offering them as one’s own. Plagiarism may be copying of someone else’s work, word-for-
word, in part or in the whole without acknowledgment. Other forms of plagiarism involve
paraphrasing the structure and language of another person’s work by changing the order or
omitting sentences, or writing based strictly on the ideas of another.”

**Standards of Behavior**

The College of Engineering has requested that all syllabi carry the following statement about the standard
of conduct expected of all students enrolled in its courses:

**Professional Conduct**

Students are expected to conduct themselves in a professional manner and to abide by the
provisions in the Code of Student Conduct. Students should appreciate diversity, and they
should conduct themselves professionally with members of the same or opposite gender and/or
from different ethnicities and cultures.

Students should represent themselves in a professional manner in forums that have public
access. This includes information posted on social networking sites such as Facebook. Information
on these pages is often screened by potential employers, and unprofessional material
can have a negative impact on job or graduate school prospects.

Any forms of sexual harassment or intimidation will not be tolerated. The University’s Code
of Student Conduct and Sexual Harassment Policy are available on the OSU web page. Sexual
harassment includes inappropriate behavior among two or more students; between students and
faculty; and among faculty. The actions can take place in physical, verbal, or written forms.
When a complaint is received, the situation will be investigated by the academic department
and possibly by the police even if the harassment was done anonymously or possibly as a jest.
Being found guilty of harassment, even if it was nominally done in jest, can be professionally
damaging.
Course Outline and Reading List

Note that some of these materials are quite technical. At first reading, you should just skim over those parts: we will explain the technicalities in class. Also, note that we might not actually get to the last few topics.

1 Introduction

Overview of the state of the transportation system.


2 Traffic Congestion

Traffic congestion is widely perceived as the most important problem in transportation planning. In this section we examine its causes, measurement, and try to understand why traditional engineering solutions will probably not work.


3 Optimal Capacity

We now extend the previous discussion to address the question of how much road capacity should be provided.


4 Road Maintenance

Most of the transportation budget is spent building and renovating roads. Here we look at how to measure road deterioration, and how to design an effective maintenance policy.
5 Optimal Road Construction

We now integrate the results of our focus on roads (capacity and durability) and discuss the general problem of road building, and its implications for highway finance.

6 Air Pollution

Next to congestion, the problem of pollution emitted by transportation vehicles — particularly cars — is probably the most visible problem facing the transportation planner. Here we attempt to see how important it really is.

7 Demand for Urban Transportation

Introduction to the study of mode choices made by people in urban areas.

Readings: lecture notes.


8 Urban Transit

We begin with an historical survey of the technology of urban transit, and follow this with an evaluation of the place of public transportation in the urban economy.


9 Some Large-Scale Projects

We examine the justifications for some large-scale transportation projects.

The BART system in the San Francisco Bay Area


The 3C rail project in Ohio:

Project Website:
http://www.dot.state.oh.us/Divisions/Rail/Programs/passenger/HighSpeedPassengerRail/Pages/OhioHubOverview.aspx;

Link to Project Final Draft Report (PDF, 311 pages); same document 2-up (PDF).

Note that Gov. Kasich has abandoned this project. Nevertheless, it is still of some interest, and may one day be revived.

The Ohio Turnpike Privatization report: PDF

10 Transit Efficiency

Is transit — or any other public service — provided efficiently? Here we discuss one way — Data Envelopment Analysis, or DEA — to assess this, a method that requires only data and linear programming.
