

970:558  
Public Transit Planning and Management  
Fall 2006  
Professors Brail and Larrousse  
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Thursday 1:10 to 3:50pm

### **Course Description**

Transit Planning and Management is one of a set of courses in transportation offered in the Bloustein School. The course builds on the rich set of resources in the school including the National Transit Institute and the Voorhees Transportation Center.

There are two primary objectives of the course. First, the course will present a broad overview of transit policy and planning issues with particular reference to the United States. We will focus on the general parameters within which transit operates in terms of financing, political support and demographics. The second objective is more specific. The course will detail the current and emerging planning and operations methods and techniques used across alternate transit modes. We will explore both conventional fixed route transit and paratransit systems, and examine technologies, applications and newer concepts, such as quality of service and the community transit system approach. The topics below will be discussed:

- Transit policy at the state and national levels
- Systems and route planning and operations
- Technology for transit applications
- Demand analysis
- Finance
- Paratransit and community transit systems
- Management of transit properties

The course is a seminar and the full involvement of all participants is expected. Requirements include a set of assignments and a final research project due at the end of the semester. This final project will be on some aspect of transit planning or management. The expected output of the project is a written professional-level paper (15 to 20 pages) and a class presentation. There are a range of topics and issues, many of which are local. New Jersey Transit is the statewide provider of public transit. The Rutgers University bus system is the second largest in the state. The New Brunswick region contains a complex mix of transit operations embedded in a highly congested auto-dominant network.

We will use a superb report prepared for the Transit Cooperative Research Program (TCRP) of the Transportation Research Board as a text. The report comes with a CD that contains the original report, a series of Excel spreadsheets, and a number of other TCRP reports focusing on transit. The report is:

*Transit Capacity and Quality of Service Manual* (TCQSM) TCRP Report 100.  
Washington: Transit Cooperative Research Program, Transportation Research Board,  
2003

We will also use other selected reports on the CD accompanying the TCQSM report. The reports from the TCQSM CD used in this class will also be available on the common drive on Knight (S:) in the UP558 folder. Go to the Documents subfolder.

Sadly, two classic books below are out-of-print. They have been available at times from booksellers found on Amazon. Selected chapters from these texts have been scanned and placed in UP558. The quality of these scans varies so that one might want to obtain book copies if available.

Alan Black, *Urban Mass Transportation Planning* (New York: McGraw-Hill, 1995)  
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George E. Gray and Lester A. Hoel, editors, *Public Transportation*, Second Edition  
(Englewood Cliffs, New Jersey: Prentice-Hall, 1992)  
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### Course Outline

- Sept 7            Introduction  
Alan Black, *Urban Mass Transportation Planning* (New York: McGraw-Hill, 1995), Chs. 1-3.  
George E. Gray and Lester A. Hoel, editors, *Public Transportation*, Second Edition (Englewood Cliffs, New Jersey: Prentice-Hall, 1992)  
Ch. 1—Smerk “Public Transportation and the City”  
Ch. 2 – Saltzman “Public Transportation in the 20<sup>th</sup> Century”  
Ch. 3 – Weiner “History of Urban Transportation Planning”
- Sept 14          Transit in North America  
*Transit Capacity and Quality of Service Manual*, Part 2: Chs. 1-5
- Sept 21          Bus mode: capacity, system and route planning  
Assignment No. 1 – Capacity analysis  
*Transit Capacity and Quality of Service Manual*, Part 4: Chs. 1-6  
Black, Ch. 8 -- “Planning Transit Networks”, Ch. 9 -- “Operations and Management”  
Gray & Hoel, Ch. 6 – Koski “Bus Transit”
- Sept 28          Modes and technology: Rail, light rail, BRT and AGT  
William Vigrass, transportation consultant  
*Transit Capacity and Quality of Service Manual* – Part 5, Ch. 1-8, 13  
Gray & Hoel, Ch. 4 –Vuchic, “Urban Passenger Transportation Modes”  
*Canadian Transit Handbook*, Ch. 3 – “Transit Technology”  
Black, Ch. 7 -- “Innovative Technology”
- Oct 5            Quality of service fundamentals and measures  
*Transit Capacity and Quality of Service Manual*, Part 1: Chs 1-3
- Oct 12          Route planning and scheduling – Route schedules, vehicle assignments and operator schedules  
Assignment 2 - Blocking and runcutting  
*Transit Scheduling: Basic and Advanced Manual*, TCRP Report 30, Basic Manual (Washington: Transit Cooperative Research Program, Transportation Research Board, 1998) – On TCSQM CD and in UPTRANSIT folder – *Basic Manual*, Chs. 1-5

- Oct 19 Security and emergency preparedness issues in transit  
Chris Kozub, National Transit Institute
- Oct 26 Creating a transit system budget  
Assignment No. 3 - Budget preparation
- Nov 2 Demand analysis  
*Canadian Transit Handbook*, Ch. 7 – “Demand Estimation”  
Black, Ch. 12 -- “The People Who Ride Transit”  
APTA, *Fare Elasticity Study*
- Nov 9 Paratransit and community transit  
*Transit Capacity and Quality of Service Manual*, Part 3:Ch. 4, Part 4:Ch. 7  
Gray & Hoel, Ch. 7 -- Jones and Chambers “Paratransit and Ridesharing”  
Black, Ch. 6 -- “Paratransit”  
Black, Ch. 13 -- “Special Groups of Users”  
Gray & Hoel, Ch. 21 – Rosenbloom “The Transportation Disadvantaged”
- Nov 16 Transit costs, benefits and pricing  
Assignment No. 4 – Designing a transit system  
Black, Ch. 14 – “Estimating System Costs;” Ch. 15 – “Pricing  
and Financing”  
Gray & Hoel, Ch. 9 – Ferreri “Comparative Costs;”  
Gray & Hoel, Ch. 11 – Deen & Pratt “Evaluating Rapid Transit”
- Nov 21(Tues) Managing a transit system  
Gray & Hoel, Ch. 16 – Smerk, “Management of Public Transportation”  
Gray & Hoel, Ch. 17 – Davis and Mundy, “Public Transportation  
Marketing”
- Nov 23 Thanksgiving (no class)
- Nov 30 Course summary
- Dec 7 No class (reading period)
- Dec 14 Project presentations