Engineering in the Community:
Transportation Advocacy in Downtown Troy

Departments of Civil Engineering and Science & Technology Studies
Spring 1997
Register for: 33.494 or 49/51.480
Friday Afternoon 1:00 PM to 3:50 PM

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Office hours by appointment.

Description
This special group independent study provides students the opportunity to administer a transportation study for a section of downtown Troy. The study involves three stages: (1) learning essentials in urban transportation engineering, (2) geometric design according to state of the art for intermodal and mixed-mode transportation, and (3) data collection and analysis of proposed designs. Students will make end-of-the-semester presentations to the City of Troy and at Rensselaer. The project will involve interacting with community and government.

Two central ideas motivate this project: First, that transportation engineering analysis and design can help improve the social quality of an area. As a student in this course, you will learn about Traffic Calming and Urban Planning. You will also apply and augment knowledge and skills learned or introduced in other courses. It is the second emphasis of this project to include affected parties so as to inform and improve your analysis and design. We will work with organizational techniques for improving participation. Community initiative, participation, and ownership will improve the quality of information that informs your work.

Students will work as a team with weekly meetings and accomplish project milestones according to a schedule developed together at the start of the semester. We will select some reading assignments, but we will expect a strong element of self-motivated research and project management. You should also plan on having a good deal of fun!

Goals for the Study:
* Learn the state-of-the-art in urban traffic engineering
* Develop designs to improve existing infrastructure
* Bring students and city together for the benefit of mutual learning
* Provide experience with data collection methods

Resources:
* Special invited speakers on the topic of Traffic Calming, design for mixed modes, etc.
* Transportation Laboratory, Room 5318 JEC
* City Planning Department
* Interviews and Meetings with Residents and Businesses in the Focal Area

Evaluation
Several factors will be balanced to evaluate your grade for the project:
Notebook (20%)
Milestone submittals (4 at 10% each)
Oral Presentations at end of semester (20%)

Project Documentation and Drawings for action by Client (20%)

Notebook

Keep a record of all notes and activities for the project in a bound notebook or binder. The purpose of this record is (1) to allow ready access for sharing information with other team members and the instructors, (2) to help us follow your progress and thinking, improving timely feedback to aid in your education, and (3) to encourage good habits of documentation for your engineering careers. I will review your notebooks once during and at the end of the semester.

Reference List

This course is project oriented, not book oriented. Nevertheless, readings in this area are important in guiding your engineering practice. Readings or research will be assigned on a week by week basis from the list below and from supplemental sources. You are expected to maintain a supplemental reference list on a sheet of paper in your notebooks.

American Association of State Highway Transportation Officials. (1991). Guide for the Development of Bicycle Facilities . Washington, DC: AASHTO.

American Association of State Highway Transportation Officials (AASHTO). (1984). A Policy on Geometric Design of Highways and Streets . Washington, DC: AASHTO.

Appleyard, D. (1981). Livable Streets. Berkeley: University of California Press.

Braaksma, J. P. (1997, January 13, 1997). A Community Based Process for Traffic Calming. Paper presented at the Transportation Research Board Annual Meeting, Washington, DC.

Burden, D. (1996). Handbook on Walkable and Bikeable Communities . FL: Walkable Communities.

Calthorpe, P. (1993). The Next American Metropolis: Ecology, Community, and the American Dream. New York: Princeton Architectural Press.

Capital District Transportation Committee. (1996). Schenectady Study . Albany, NY: Capital District Transportation Committee.

Edwards, J. D., Jr. (Ed.). (1992). Transportation Planning Handbook. Englewood Cliffs, NJ: Prentice-Hall.

Etzioni, A. (1993). The Spirit of Community. New York: Simon and Schuster.

Gratz, R. B. (1989). The Living City. New York: Simon and Schuster.

Institute of Transportation Engineers. (1992). Transportation Planning Handbook. Englewood Cliffs, NJ: Prentice Hall.

Institute of Transportation Engineers. (1995). Design and Safety of Pedestrian Facilities (Publication No. RP-026). Washington, DC: Institute of Transporation Engineers.

Jacobs, J. (1961). The Death and Life of Great American Cities. New York: Vintage.

Latour, B. (1996). Aramis, or The Love of Technology (Catherine Porter, Trans.). Cambridge, MA: Harvard University Press.

Meyer, M., & Miller, E. (1984). Urban Transportation Planning. New York: McGraw Hill.

New York State Department of Transportation. (1995). Pedestrian and Bicycle Facility Scoping Guide . Albany, NY: Corridor Planning and Project Scoping Section, NYSDOT.

Papacostas, C. S., & Prevedouros, P. D. (1993). Transportation Engineering and Planing. Englewood Cliffs, NJ: Prentice-Hall.

Traffic Calming Program. (1996). assorted materials . Portland, OR: City of Portland Office of Transportation.

Ryan, K. L. (Ed.). (1993). Trails for the 21st Century. Washington, DC: Island Press.

Shaffer, C. R., & Anundsen, K. (1993). Creating Community Anywhere. New York: Tarcher/Perigee Books.

The Access Board. (1996). Accessible Sidewalks: Design Issues for Pedestrians [Video]. Washington, DC: The Access Board.

Transportation Research Board (TRB). (1994). Highway Capacity Manual (Special Report 209). Washington, DC: TRB.

United States Department of Transportation (USDOT). (1993). The National Bicycling and Walking Study: Transportation Choices for a Changing America (Publication No. FHWA-PD-94-023). Washington, D.C.: Federal Highway Administration.

United States Federal Highway Administration. (1989). Manual of Uniform Traffic Control Devices: for streets and highways. Washington, DC: U.S. Department of Transportation, Federal Highway Administration.

Schedule

January 17 Introduction
Assignment: Braaksma (1997), CDTC Schenectady Study (1996)
library literature search on Traffic Calming and other TE design considerations.

January 24 Community Resources and Participation
Meeting with members of the community
Assignment: Etzioni (1993), Creating Community Anywhere (1995), Jacobs (1961)

January 31 Traffic Calming Theory
Levels of Transportation Engineering SOTA: How to choose?
Assignment: Dan Burden handbook on Walkable and Bikeable Communities
MUTCD sections on signs and pavement markings
NYS DOT Bicycle and Pedestrian Program Materials

February 7 Design for Mixed Modes
Milestone 1: Presentation of Design Elements and Resources. (Report due 2/10)
Guest: Jeff Olson, NYS DOT Bicycle and Pedestrian Program Manager
Assignment: Chapters 5,6,&7 in McShain & Roess.

February 14 Gathering Traffic Counts: Dr. List
Assignment: City of Troy Consolidated Plan. TRIP Report.

February 21 Representation of Community Interests and Problems
Assignment: Saratoga Downtown Plan, develop report and representations

February 22 **Community Meeting #1: Introduction and Walking Survey**

February 28: Components of Downtown Plans
Milestone 2: Community Participation and Needs Report Presentation (Report due 3/3)
Guest: John Muse, Architect, Saratoga, NY Downtown Study
Assignment: Street Configurations Readings

March 5 **Community Meeting #2: Design Workshop**

March 7 Reconfiguring Streets: Dr. List
Assignment: (no assignment: work on draft area plans)

March 14 Spring Break

March 21: Transit
Guest: Jack Riley, Capital District Transit Authority
Assignment: (continue project work)

March 28 Planning for Parking Facilities/Requirements: Dr. List
Milestone 3: Draft Area Plans/Initial Engineering Data
Assignment: Materials from the Portland, OR Bureau of Traffic Management

April 4 The Case of Portland Oregon
Assignment: (no assignment: continue work on plans)

April 14 **Community Meeting #3: Review and Response to Initial Designs**

April 11 Professional Engineering Presentations
Milestone 4: Initial Engineering Design and Research Deliverables

April 18 Student's Choice Topic

April 25 Presentations to City, Community, CDTC, Rensselaer audiences.

May 2 Submit Final Documentation.