*Urban Transportation, Infrastructure & Land Use* *EVDS 616 (H3-0)*
*Tom Harper* *Winter 2012*

## Introduction

This course is designed to acquaint students with the key infrastructure systems of a city. It examines current standards and practices, challenges, and innovations in the following infrastructure sectors: transportation, water, waste management, energy and communication. The major impacts of these infrastructure systems on spatial structure, the environment, quality of life, and economic development, are discussed. The course also examines various financial and institutional frameworks for delivering infrastructure systems, and how they vary across different contexts.

## Objectives

1. To acquaint students with basic elements of urban infrastructure.
2. To understand the relationship between infrastructure and urban form, environment, urban quality of life, and economic development.
3. To examine alternative institutional and financial modes of delivering infrastructure.

## Assignments

Students choose an infrastructure system and examine current practices and issues in and around a city, *or* emerging trends and innovations, and conduct a critical analysis. The course evaluation will be based on a presentation to the class, submission of a term paper embodying feedback from class discussion, as well as participation in class discussions, and two written commentaries.

## Means of Evaluation

The course evaluation will be based on two group assignments completed during the term and a final take home exam. Students are expected to read assigned materials in advance and to participate in class discussions and group projects.

Students must perform satisfactorily in each of the following evaluative components to receive a passing grade in the course:

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|---|---|
| Class Discussion Participation | 10% |
| Class Presentation | 20% |
| Written Commentaries on Lectures and Readings (2 short papers) | 30% |
| Term Paper **(Due Friday, March30)** | 40% |

## Course Readings: (subject to change)

### Introduction

Graham, Stephen. Introduction: Cities and Infrastructure Networks. *International Journal of Urban and Regional Research* 24(1), March 2000.

### Transportation

Cervero, Robert. *Transportation and Land Use: Key Issues in Metropolitan Planning*. Paper delivered at International Transportation Conference, Berkeley, California, 1997.
The World Bank. Executive Summary. In *Cities on the Move: Urban Transport Strategy Review.*

Washington DC, 2002.
Pucher, John. Back on Track: Eight steps to rejuvenate public transport in Canada. *Alternatives Journal* 24(1), Winter 1998. [in resource room]
Tolley, R. and B. Turton. Ch 7. Urban Transport Problems. In *Transport Systems, Policy and Planning*. 1995. [in resource room]
Newman, Peter and Jeffrey Kenworthy. *Sustainability and Cities: Overcoming Automobile Dependence.* Island Press: Washington DC and Covelo, CA. 1999. Chapter 2: The Problem of Automobile Dependence at the End of the 20th Century; Chapter 3: The Pattern of Automobile Dependence and Global Cities. [in resource room]
*The Economist*. Motoring in Japan: Highway Robbery. Jan 4, 2007.
[Optional] Pucher, J. and C. Lefebvre. Ch 9. Canada: Bridge between Europe and the United States. In *The Urban Transport Crisis in Europe and North America.* MacMillan, 1996. [in resource room]
[Optional] Schwarz, Ekkehart R. J. Ch 6. Streets. In George Rainer (ed) *Understanding Infrastructure: A Guide for Architects and Planners*. John Wiley & Sons: Toronto. 1990. [in resource room]

**Water, Wastewater, and Storm Water Systems**
Rainer, George. *Understanding Infrastructure. A Guide for Architects and Planners*. Chapter 1: Water Supply and Chapter 2: Sewers and Storm Drainage. John Wiley & Sons: NY, Toronto. 1990. [Available in Reading Room]
Wong, T. An Overview of Water Sensitive Design Practices. *Water Practice & Technology* 1(1) 2006. (8 pages).
The Sheltair Group. *Green Municipalities: A Guide to Green Infrastructure for Canadian Municipalities.* FCM. 2001. Best Practices (pp 18-26) and Common Obstacles (pp 36-37) ONLY. Also available on the web at:
http://www.sustainablecommunities.fcm.ca/files/Tools/GreenGuide_Eng_Oct2002.pdf
GVRD. *Sustainable Building Designs: Principles, Practices and Systems.* 2003. Best Practices of Sustainable Design pp 30-39 ONLY. Also available on the web at:
http://www.gvrd.bc.ca/buildsmart/pdfs/sustainablebuilddesprinciplespracticessys4.pdf
[Optional] Environment Canada. *National Action Plan to Encourage Municipal Water Use Efficiency.* Available on the web at: http://www.ec.gc.ca/water/en/info/pubs/action/e_action.htm
[Optional] Lloyd, S., T. Wong, and C. Chesterfield. *Water Sensitive Urban Design: A Stormwater Management Perspective.* Cooperative Research Centre for Catchment Hydrology, Victoria, Australia. 2002. pp 1-31.
VIDEOS: the city underground & Water in Latin America

**Parks & Open Space**
Fausold, Charles J. and Robert J. Lilieholm. 1996. *The Economic Value of Open Space: A Review and Synthesis*. Lincoln Institute of Land Policy Research Paper (WP96CF1). Available on the web at:
http://www.californiaopenspace.com/the_economic_value_of_open_space.htm#Public [Access date: March 9, 2006.]
Gies, Erica. *The Health Benefits of Parks: How Parks Help Keep Americans and their Communities Fit and Healthy*. The Trust for Public Land: San Francisco. 2006.
The City of Calgary. *Open Space Strategy for Established Communities.* Final Report. January 2006.
Taylor, James; Cecelia Paine and John FitzGibbon. From greenbelt to greenways: Four Canadian case studies. *Landscape and Urban Planning*, 33(1-3), October 1995. (pp 47-64)
Links to related sites, including podcast about REBAR in San Francisco, is available online at:
http://www.archive.org/details/jonwinstonPARKingremixingyourlandscape, and
http://www.rebargroup.org/projects/parking/index.html#
[Optional] Bengston, David; Jennifer Fletcher, Kristen Nelson. Public Policies for Managing Urban

Growth and Protecting Open Space: Policy Instruments and Lessons Learned in the United States. *Landscape and Urban Planning*. 26, 2004. (pp 271-286).

**Solid Waste**

Strange, K. Overview of Waste Management Options: Their Efficacy and Acceptability. *Issues in Environmental Science and Technology*, No. 18. Environmental and Health Impact of Solid Waste Management Activities. 2002, pp 1-51. [The reading is available in the resource room, or online at: http://site.ebrary.com/lib/ucalgary/Doc?id=10020652&ppg=13 (Use Next Page arrow in the ebrary menu to advance).

Engler, Mira. Repulsive Matter: Landscapes of Waste in the American Middle-Class Residential Domain. *Landscape Journal*, Spring 1997, Vol. 16 Issue 1.

**Energy**

Rainer, George. *Understanding Infrastructure. A Guide for Architects and Planners*. Chapter 4: Energy. John Wiley & Sons: NY, Toronto. 1990. [Available in Reading Room]

Sauer, Greg. *Co-operative Development of Renewable Energy in Alberta: Energy as if People Mattered.* Unpublished Master's Degree Project. University of Calgary. February 2007. Chapter 4: Case Study of Problem Facility Siting: Biogas in the County of Lethbridge, Alberta.

[Optional] The Sheltair Group. *Green Municipalities: A Guide to Green Infrastructure for Canadian Municipalities.* FCM. 2001. Best Practices: Energy Systems (pp 27-29) ONLY.

[Optional] Olson, Sherry. Chapter 10: Form and Energy in the Urban Built Environment. In T. Bunting & P. Filion (eds) *Canadian Cities in Transition: The Twenty-First Century.* 2nd ed. Oxford University Press. 2000. [Available in Reading Room]

**Telecommunications**

Moss, Mitchell, "Technology and Cities". *Cityscape: A Journal of Policy Development and Research, vol. 3, no. 3.* 1998

Mitchell, William J. *e-topia*. Prologue: Urban Requiem, Chapter 1: March of the Meganets, Chapter 5: Homes and Neighborhoods. The MIT Press: Cambridge, MA. 1999. [Available in Reading Room]

[Optional] Audirac, Ivonne. Information Technology and Urban Form. *Journal of Planning Literature*. 17(2), 2002.

**Infrastructure Needs Assessment, Finance & Delivery Modes**

National Guide to Sustainable Municipal Infrastructure (InfraGuide). *Planning and Defining Municipal Infrastructure Needs.* April 2003. Also available at: www.infraguide.ca.

National Guide to Sustainable Municipal Infrastructure (InfraGuide). *Alternative Funding Mechanisms.* April 2003. Also available at: www.infraguide.ca.

Bonneville, Eric; Anne Riahle. Demand-side management for commercial and residential endusers. In *Efficiency & Eco-design.* May 2006. www.leonardo-energy.org

Van Vliet, Bas, Heather Chappells and Elizabeth Shove. Chapter 7: Restructuring demand and efficiency. *Infrastructures of Consumption: Environmental Innovation in the Utility Industry*. Earthscan: London and Sterling VA. 2005. [In Reading Room]

Zérah, Marie-Hélenè, and Kathleen Graham-Harrison. Case Study: *The Buenos Aires Concession*. Water & Sanitation Program, The World Bank. January 2001.

[Optional] Webster, Douglas. *Financing City-Building: The Bangkok Case*. Asia/Pacific Research Centre, Stanford University. April 2000. [In Reading Room]

[Optional] Gerber, E. R.; C.K. Hall; and J.R. Hines. *Privatization: Issues in Local and State Service Provision*. Policy Report No. 1, Centre for Local, State and Urban Policy, University of Michigan, February 2004.

[Optional] *Infrastructure at Crossroads.* World Bank. Pages TBA

**Infrastructure in Context – City Building & Growth Management**

Artibise, Alan, Ken Cameron, and Julie Seelig. Chapter 11. Metropolitan Organization in Greater

Vancouver: "Do it Yourself" Regional Government. *In* Donald Phares (ed), *Metropolitan Governance without Metropolitan Government?* Ashgate: Burlington, VT. 2004. [In Reading Room]
Carruthers, John and Ulfarsson, Gudmundur. Urban sprawl and the cost of public services. *Environment and Planning B: Planning and Design.* Vol 30, 2003. (pp 503-522)
Cervero, Robert. Growing Smart by Linking Transportation and Land Use: Perspectives of California. *Built Environment*. 29(1).
[Optional] Stephenson, K., C. Speir, L. Shabman, and D. Bosch. *The Influence of Residential Development Patterns on Local Government Costs and Revenues*. Virginia Tech. August 2001.
[Optional] Godschalk, David R. Smart Growth Efforts around the Nation. Popular Government. Fall 2000. (pp. 12-20).
[Optional] Nielsen S.B; Elle M. Assessing the potential for change in urban infrastructure systems. *Environmental Impact Assessment Review*, vol 20, no 3, June 2000, pp. 403-412

**Course Schedule:**
Will be available at first class on Jan 13.

**Notes:**

1. Written work, term assignments and other course related work can only be submitted by e-mail or drop-box if prior permission to do so has been obtained from the course instructor.
2. It is the student's responsibility to request academic accommodations. If you are a student with a documented disability who may require academic accommodation and have not registered with the Disability Resource Centre, please contact their office at 220-8237 (http://www.ucalgary.ca/drc/node/46). Students who have not registered with the Disability Resource Centre are not eligible for formal academic accommodation. You are also required to discuss your needs with your instructor no later than fourteen (14) days after the start of this course.
3. Plagiarism - Plagiarism involves submitting or presenting work in a course as if it were the student's own work done expressly for that particular course when, in fact, it is not. Any suspicion of plagiarism will be reported to the Dean, and dealt with as per the regulations in the University of Calgary Graduate Calendar.
4. Emergency Evacuation/Assembly Points are identified at the following URL (http://www.ucalgary.ca/emergencyplan/assemblypoints).
5. Safewalk information (http://www.ucalgary.ca/security/safewalk).
6. Contact Information for: Student Union (http://www.su.ucalgary.ca/page/affordability-accessibility/su-structure/contact-info); Graduate Student representative (http://www.ucalgary.ca/gsa/) and Student Ombudsman's Office (http://www.su.ucalgary.ca/page/quality-education/academic-services/student-rights).