Sustainability City Planning
Course Description and Syllabus

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Syllabus: URBS 481/581 Special Topics: Sustainability Planning
Instructor: J. Michael Orange, 651-457-8793, orange_michael@msn.com

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Course Description

1.0. Course Logistics:

1.1. Course Times and Places:

- Fridays, January 16 – May 8, 2 pm - 4:45 pm. (No class on March 13)
- This is a telepresence course:
  - Course 007026 & 007268: 7700 France Ave. S., Edina, MN, Room 345.
  - Course 007270 & 007271: Wissink Hall on campus, Room 112.


1.3. Office Hours: Please use phone or email messages to discuss concerns or to schedule a visit before or after class at the Edina building.

1.4. Course Prerequisites: No course requirements; however, experience or prior coursework regarding general city planning principles and urban sustainability is recommended. Please complete Initial Student Evaluation Form prior to first class (available on the Survey tab in D2L).

2.0. Course Description: The focus of this course is city planning practice as opposed to city planning theory. It deals with the tools city planners and other environmental leaders use to steer cities on to a more sustainable course. Students will examine the professional skills and issues that make the practitioner in the local government arena more effective in this communication-intensive field. To help the student comprehend the scale of the challenges, the course will also address the greatest challenge city planners have ever faced—global climate change. Cities are the level of government that has the greatest authority and responsibility over the two issues that can have the most significant, long-term effects on greenhouse gas emissions and energy demand; namely, land use and local transportation. At this time, no city in Minnesota is fully ready for this fundamentally different future (and only a few have begun to seriously plan for it).

As Douglas Farr puts it: “Changing the built environment in the ways called for in this book seems like an impossible undertaking. In truth, the entire built environment gets renewed or rebuilt every few generations, and we just need to do it differently. The far bigger challenge is changing the values, perceptions, and dreams that cause us to persist on the wrong course when we all know better. I believe that the time is ripe for the United States to turn the page and adopt sustainable urbanism as our generation’s moon shot.”¹ The goal of this course is to learn to build a future worth exploring.


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2.1. Components: The primary components of the course are as follows:

2.1.1. The Three Es of Sustainability Planning: Sustainability planning involves the traditional energy and environmental issues, but so much more. This course will also look at equity issues such as sustainable economics, education, and health. The climate change (and peak oil) crises call for local governments to assess their vulnerabilities and identify methods to mitigate and adapt to this vastly different future. This course will help students prepare plans that embrace a long-range sustainable future and then back-cast to present day conditions.

2.1.2. Sustainability Tools and Issue Areas: The tools to make cities more sustainable have matured in recent years. In addition to the material covered in the required reading, classroom topics will cover the concepts, procedures, policies, and metrics associated with the following topics:

- **Urban land use and transportation issues**: New urbanism, smart growth and smart shrinkage, transit-oriented development, complete streets and context-based street design, travel demand management planning, traditional neighborhood design, mixed-use districts, and LEED for Neighborhood Development.

- **Plans, indicators, and regulations**: Sustainability plans, climate mitigation and adaptation plans, carbon baseline assessments, indicators, model ordinances, and form-based codes.

- **High-performance urban infrastructure**: Permeable paving; stormwater management through drought-tolerant, water-efficient landscapes; green wastewater treatment; waste management; and dark sky lighting.

- **Sustainable urban forests and biodiversity corridors**: Urban forests as essential urban infrastructure, and managing the emerald ash borer and other invasive species.

- **High-performance building design**: LEED, benchmarking, and building recommissioning.

- **Green power**: Renewable fuels, co-generation, district energy, distributed generation, and green fleets.

- **Local self-reliance and equity**: Locally owned commercial and industrial facilities, local food production, and mutual aid societies.

- **Citizen participation**: Recruiting stakeholders in the process of sustainable city planning.

2.1.3. Barriers to Implementation: This course will explore the barriers to implementing best practices, including barriers of perception (e.g. science deniers in positions of power); budget and staff time constraints; planners’ lack of authority and political power; and the tyranny of short-term priorities (e.g. potholes, public safety, aging infrastructure, reduced resources, elections, etc.). The class will explore how city planners can transform barriers into opportunities.
2.1.4. **Urban Competition:** Cities compete with one another to attract, retain, and grow the industries and the work forces that can strengthen their economic bases. They also vie for the cultural, educational, and recreational amenities that enhance an urban quality of life. A more sustainable city is a more competitive city. Increasingly, there are federal, state, and private resources tied to energy efficiency measures and sustainable practices. This course covers the tools to get cities on track towards sustainability, which will also make them more competitive grant applicants.

2.2. **Guest Speakers:** Classes will include ten guest speakers who are experts in their field:

- Steve Mahowald, senior transit planner, MetroTransit: Transit planning in the Twin Cities
- Phil Muessig, Minnesota GreenStep Cities Program Coordinator with the Minnesota Pollution Control Agency: The GreenStep Cities Program
- Richard Carter, Senior Vice President, LHB Architects: The characteristics of high performance buildings and certification standards including LEED and the Regional Indicators Initiative
- Randy Naprash, engineer with Bonestroo, Rosene, Anderlik, and Associates, Inc.: Stormwater management and water quality improvement
- Jon Wertjes, Director of Traffic and Parking Services, Minneapolis Public Works Department: Transportation planning
- Jeffrey Hafner, Director of Municipal Consulting, Rainbow Tree Care: The urban forest as infrastructure
- Brian Ross, Principal, CR Planning: Model ordinances
- Gayle Prest, Sustainability Manager, City of Minneapolis: Sustainability efforts in Minneapolis
- Warren Hanson, President and CEO of the Greater Minneapolis Housing Fund: Affordable green housing
- David Morris, Vice President, Institute for Local Self Reliance: Self-reliant cities and the ethical side of sustainability

2.3. **Class Environment:** The course will employ a variety of learning techniques, including lectures and discussions; audiovisual presentations, team projects, consensual decision-making exercises, student presentations, and field experience. Above all, the teaching style in this course is based on a collegial model that assumes each student will be an active participant responsible for his or her own learning, and that I, as instructor, am primarily a facilitator and a resource person. Part of the time, the classroom will function more like a planning department, with me playing the role of planning director who has the responsibility to assign and evaluate work, and teach and coach the “staff.” Students function like members of a planning team dedicated to completing the assignments on time in a collaborative manner. Students will play roles such as convener of a meeting, newsprint summarizer, presenter, NIMBY-motivated citizen, elected official, planning commissioner, etc.
3.0. **Learning Outcomes:** This course has several major learning outcomes:

- Students will learn to analyze a city in terms of its ability to mitigate and adapt to the vastly different future caused by the impending climate change crisis.
- Students will develop marketable expertise with the many sustainability tools listed above. These skills are in immediate demand in the city planning and urban sustainability fields.
- Students will research and analyze issues and then debate and discuss them in class. They will develop written and oral presentations that involve hands-on field study. These activities will enhance each student’s knowledge and communication skills.
- This course will prepare the student to be a leader-advocate for sustainable urbanism, whether as an elected official, a professional staff person, or a citizen volunteer.

4.0. **Past Student Evaluations:** More than 90% of the students from prior courses agreed with the statement in the post-course evaluation that they would recommend the course to others. The value added by the guest experts was a consistently appreciated aspect of the course.

5.0. **Recommended Reading and Viewing:** The following sources are recommended (but not required) to fully comprehend the issues covered in the course:

**5.1. Climate Change, Peak Oil, Industrial Food:**
- *An Inconvenient Truth*, 2006, a film documentary by former Vice President and Senator Albert Gore.
- *Storms of My Grandchildren: The Truth about the Coming Climate Catastrophe and Our Last Chance to Save Humanity*, James Hansen, 2009.
- *Food, Inc.*, 2009, a film documentary by Robert Kenner.

**5.2. New Urbanism, Sustainability Standards and Plans:**
- *Living Building Challenge* (similar to LEED)

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*Obtainable from the Barnes and Noble University Bookstore or via a Kindle version [Farr ($44), McKibben ($10)].*

6.0. **Assignments, Deliverables, Presentations, and Deadlines:** Course requirements include required readings, several brief papers designed to inform me that students are completing the reading assignments, a *Class Project*, and at least two class presentations.

6.1. **Required Readings:** In order to have all students quickly prepared for the material to be covered in class, the required readings involve 30-40 pages a week for the first half of the semester and half that amount during the second half of the semester. Students should check the D2L system regularly for added assignments prior to the next class. Required texts and readings are as follows:

• *Eaarth: Making a Life on a Tough New Planet*, Bill McKibben, 2010 (available in paperback).³
• An essential aspect of the course is for the students to become very familiar with the numerous resources available through the Minnesota Pollution Control Agency’s GreenStep Cities Program ([http://greenstep.pca.state.mn.us/](http://greenstep.pca.state.mn.us/)). This will be essential for the students to complete their *Class Projects* (refer to Section 6.3).
• Web-based sources of information that are included in the Syllabus and will be necessary for the research demands of the course.

6.2. **Research Memos:** Students will prepare several 1-3-page, single-spaced *Research Memos* and will present at least one of the *Memos* to the class. Students should assume the reader is a layperson unfamiliar with the topic and thus provide all necessary supportive information. At the end of this paper are two sample *Research Memos* to which I have added introductory comments (refer to Attachment 1).

6.2.1. **Number:** Undergrad students will prepare a minimum of three *Research Memos* and graduate students will prepare a minimum of five. A student may develop a more in depth *Research Memo* (3-4 single-spaced pages) and request that it be judged as two *Memos*. Students may choose to submit additional *Research Memos* for extra credit or to compensate for absence at a class. In this latter case, the topic of the *Memo* should be the main subject addressed during the missed class.

6.2.2. **Topics and Deadlines:** There are two kinds of *Research Memos*, *Climate Change* and *Optional Topic*. Refer to Section 7.2. below regarding deadlines for submissions.

• **Climate Change Research Memo:** For the *Climate Change Research Memo*, students will write a 1-3-page position paper with the purpose of convincing the reader of the scale and importance of the global climate change issue *at the local level* based upon their reading of *Eaarth*, classroom discussions, and other materials the student may find appropriate. The assumed “audience” for
the paper is the staff and city council of a real or imaginary city (e.g. the student’s hometown). The student should assume their audience includes environmental advocates, people unaware of the issues, and science deniers. Convince me that you have read the book, understand the global importance of the issues, and, most importantly, you realize how these global issues will affect the city.

- **Optional Topic Research Memo:** Students may choose the topic for the *Optional Topic Research Memos* provided the topics address the main issues raised in the class and in the research and textbook assignments. Students will use the *Optional Topic Research Memo* to explore topics that pique their interest, to demonstrate that they have read and digested the assigned readings, and to develop and describe their own opinions of the topic matter. Since the topic of the *Climate Change Memo* (see above) must address the climate change issue, other *Optional Topic Research Memos* should not. I prefer papers that are local in scope as opposed to ones that deal with global or international issues (with the exception of the *Climate Change Memo* described above). Since this is a city planning course, papers regarding rural issues are not acceptable. Students may submit Optional Topic Research Memos as early on in the course as they wish. Section 7.6. below provides the deadlines for submissions.

6.2.3. **Format and Submission Requirements:** These *Memos* will be written in the format as described in the “URSI Style Sheets” and in the memo “Guidelines for Written Submissions and Presentations,” (both of which are available on the course’s D2L site).³ Please submit all papers in Times New Roman, 12-point font with “Normal” (1”) margins. Papers must be free of spelling and basic grammatical errors.⁴ Read them aloud before hitting “send.” Do NOT use the D2L Dropbox for submissions. Rather, please email them directly to me at orange_michael@msn.com.

6.2.4. **Instructor’s Comments and Grading:** I will make comments and may expect students to respond to the comments and resubmit a final version. I will inform students of their grades on each paper. Grade evaluation of the *Memo* will be based primarily on content and secondarily on the quality of the writing (because written and oral communication in a professional manner is an important component of the course and city planning is a writing-intensive field).

6.2.5. **Presentation:** Students will make a brief (4-5 minute) presentation of at least one *Research Memo* to the rest of the class (after the 3rd class and before the 14th class).

³ The University offers writing tutorials including on-line help: [http://www.mnsu.edu/success/tutoring/writing-center.html](http://www.mnsu.edu/success/tutoring/writing-center.html)

⁴ In past courses, students have submitted papers before correcting spelling and simple grammatical errors despite reminders to the contrary. This will no longer be the case. It is not acceptable in a professional setting or in a college setting. Papers with more than a few errors will not be accepted for review.

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6.3. **Class Project:** Students will demonstrate what they have learned in the course through the preparation of a *Class Project*. Students will present their *Class Projects* to the class during the last two or three classes. *Class Projects* will have two major forms, **either** the completion of the Inventory portion of Step 1 of the GreenStep Cities Program for a city, or they will serve on the team that writes the climate action plan for the University.

6.3.1. **Step 1 of the GreenStep Cities Program:** I am collaborating with Phil Muessig, staff of the Minnesota Pollution Control Agency and Director of the Minnesota GreenStep Cities Program (Program),\(^5\) to connect one or two student teams with cities that need help with their participation in the Program or are considering participating. We will match a student team to the appropriate city staff person in a city within the Twin Cities region. The report, “Student Class Project Guide: GreenStep Cities Program,” provides full instructions (posted on the D2L system).

6.3.2. **Climate Action Plan for MSU, Mankato:** The University contracted with Sebesta Blomberg and Associates, Inc. (Sebesta) to prepare a climate action plan for the University. The plan will set carbon reduction goals for the University and describe specific strategies designed to accomplish those goals. As part of the University-Sebesta contract, University students from this Sustainable City Planning course will use the materials to be provided by Sebesta to write the final climate action plan (CAP). The University will invite the students to present the final CAP to the University community either towards the end of the semester or early in the fall 2015 semester. The report, “Student Class Project Guide: Climate Action Plan for MSU, Mankato,” provides full instructions (posted on the D2L system).

6.3.3. **Class Project Updates:** Students are required to provide at least one brief update for the class regarding the nature of the *Class Project* and its current status (less than 5 minutes).

6.3.4. **Class Project Report and Presentation:** The report, “Student Class Project Guide: GreenStep Cities Program,” serves as a guide for preparing a *Class Project Report* and making a class presentation of it.

7.0. **Deadlines:**

7.1. **Reading Assignments:** The assignments are described for each class in the next section of this Syllabus, Sustainability Planning Course Outline.

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\(^5\) Refer to: [http://greenstep.pca.state.mn.us/index.cfm](http://greenstep.pca.state.mn.us/index.cfm)

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7.2. Research Memos:
- Students may submit Optional Topic Research Memos any time after class #3.
- The Climate Change Memo must be submitted between the class #6 (when the reading assignment of the entire McKibben book has been completed) and the class #8 (after which Class Projects will be the focus of class assignments).
- By the class #11, undergrad students must have submitted at least one additional Research Memo. Graduate students must have submitted at least two additional Research Memos.
- All required Memos must be received by the class #14.

7.3. Class Presentation of a Research Memo: Students must make at least one presentation of a Research Memo between the class #3 and the class #13.

7.4. Class Projects:
- Class Project Proposals: Students should submit Class Project Scope of Work Agreements prior to class #9.
- Class Project Presentations: Students will present their Class Project Reports during the last three classes.
- Class Project Reports: Class Project Reports must be received by 4:30 on the last day of the semester.

7.5. Summary Schedule of Deadlines:

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>#8</td>
<td>3/6/15</td>
<td>(Midterm) Submit Climate Change Research Memo</td>
</tr>
<tr>
<td>#9</td>
<td>3/20/15</td>
<td>Submit Class Project Scope of Work and Research Paper Proposals</td>
</tr>
<tr>
<td>#10</td>
<td>3/27/15</td>
<td>Submit Optional Topic Research Memo #2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GreenSteps Cities teams submit approved Scope of Work Agreement</td>
</tr>
<tr>
<td>#12</td>
<td>4/10/15</td>
<td>Submit Optional Topic Research Memo #3</td>
</tr>
<tr>
<td>#14</td>
<td>4/24/15</td>
<td>Submit all remaining required Research Memos</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Presentations of Class Project Reports, Research Papers, and Research Memos</td>
</tr>
<tr>
<td>#15</td>
<td>5/1/15</td>
<td>Presentations of Class Project Reports Research Papers, and Research Memos</td>
</tr>
<tr>
<td>n/a</td>
<td>5/8/15</td>
<td>Written submission deadline (4:30 p.m.) for all required work (including extra credit work)</td>
</tr>
</tbody>
</table>

8.0. Evaluation Criteria: This 3-credit course is available for grade only. Each student is expected to participate actively as a group discussant, researcher, analyst, writer, communicator, and listener. Class attendance is required. Course grades will be based on the following point system plus subjective evaluations of the quality of the class participation, presentations, and written submissions:
- Attendance: ............................................. 33
- Class participation: ..................................... 13

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Syllabus: URBS 481/581 Special Topics: Sustainability Planning
Instructor: J. Michael Orange, 651-457-8793, orange_michael@msn.com

- Research Memos and presentation: ........... 22
- Role play exercise: ................................. 2
- Class Project Report and presentation: ..... 30
  100

9.0. Classroom Policies: All activities that contribute toward making the classroom a place of mutual respect, advanced learning, creativity, and great interest are encouraged. Disruptive activities that are contrary to classroom policy include partial or complete absence without a previously approved arrangement, conversation dominance, frivolous conversations, non-participation, and cell phone or unrelated computer use. Review the ITV Guide.

10.0. Disability Statement: Every attempt will be made to accommodate qualified students with disabilities. If you are a student with a documented disability, please inform me as early in the semester as possible to discuss the necessary accommodations, and/or contact the Disability Services Office at 507-389-2825 (V) or 1-800-627-3529 (MRS/TTY).

Sustainability Planning Course Outline

Class #1: Jan 16
Introduction:
- Self-introductions based on the responses in the Initial Student Evaluation Form: Tallies of student interests, skills and related work experiences, and class expectations relative to course topics.6
- Course overview and expectations as described in the Syllabus.

The case for sustainable urbanism, part 1: The class will explore the twin crises of climate change and peak oil, and what they portend for cities using the following resources in class: Film clips from the documentary, An Inconvenient Truth, excerpts from Bill McKibben’s book, Eaarth: Making a Life on a Tough New Planet, and numerous other sources.

Assignments for the next class:
- Read Preface and Chapter 1, pages 1-46 in Eaarth, Bill McKibben (McKibben).

Class #2: Jan 23
The case for sustainable urbanism, part 2: The class will continue the exploration with a focus on climate change and Eaarth.

Written communications and presentations in the planning field: Case study—Marquette Plaza Site Plan Review and Travel Demand Management Plan, Minneapolis.

Sustainable land use and transportation, part 1: Transit Oriented Development (TOD), Travel Demand Management (TDM) Plans, and Traditional Neighborhood Design (TND)

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6 Students should complete the Initial Student Evaluation Form prior to the first class on Aug. 28 so that it can be shared with the entire class. Students are encouraged to include a photo of themselves. This is especially important because we rely on the ITV interface between the two classrooms.

Variations in this document are likely as the class progresses. Refer to the date on the first page to ensure you have the most recent version.
Discussion of reading assignments and discussion questions and discussion questions

Assignments for the next class:
- Review (meaning scan for relevance) Transit for Livable Communities
- Prepare Research Memo (each student/grad student will prepare a minimum of 3/5 Memos and present at least one over the semester on a rotational basis; see Section 7.6. for submission deadlines)

Class #3: Jan 30
Guest speaker: Steve Mahowald, senior transit planner, MetroTransit. Mr. Mahowald will provide an overview of transit planning in the Twin Cities.

Sustainable land use and transportation, part 2: Transit Oriented Development (TOD), Travel Demand Management (TDM) Plans, and Traditional Neighborhood Design (TND)

Discussion of reading assignments and discussion questions

Assignments for the next class:
- McKibben: Read half of Chapter 3, pages 102-128.
- On the GreenStep Cities Program website:
  - Review the Inventory spreadsheet (http://greenstep.pca.state.mn.us/steps.cfm)
  - Review the Clean Energy Resource Teams case studies http://www.cleanenergyresourceteams.org/
- Review the MPCA’s Next Step website: http://www.nextstep.state.mn.us/
- Review ICLEI—Local Governments for Sustainability
  - History, member cities, and FAQs
- Prepare Research Memo (each student/grad student will prepare a minimum of 3/5 Memos and present at least one over the semester on a rotational basis; see Section 7.6. for submission deadlines)

Class #4: Feb 6
Guest speaker: Phil Muessig, Minnesota GreenStep Cities Program Coordinator with the Minnesota Pollution Control Agency. Mr. Muessig will describe the program and the encyclopedic resources

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7 Steve Mahowald has 41 years in transit with Metro Transit—the first five years as an operator and the last thirty-six in Metro Transit’s Service Development Division. Recent projects include the Marquette/2nd Avenue redesign of service in downtown Minneapolis, the Southwest Corridor LRT project, and the restructuring of transit service in the southwest suburbs of Minneapolis. Mr. Mahowald also teaches a graduate-level, Transit Planning class at the University of Minnesota’s Humphrey Institute of Public Affairs; and, over the past twenty-two years, he has served on the City of Bloomington’s Planning Commission, Traffic and Transportation Commission, and more recently on the City’s Housing and Redevelopment Authority.

8 Philipp Muessig’s background is in science and community development, with previous jobs in minerals exploration, cooperative business development and neighborhood association management. A graduate of Carleton College, he is currently with the MPCA’s assistance division where he coordinates the GreenStep Cities program. Prior work includes the NextStep website, Living Green Expo, the MN Design Team and the MN GreenCorps.

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available for sustainability while making the point that it is not a lack of knowledge but rather a lack of commitment that impedes progress.

**Sustainable land use and transportation, part 3:** Transit Oriented Development (TOD), Travel Demand Management (TDM) Plans, and Traditional Neighborhood Design (TND)

**The complex role of cities on a changed planet:** The class will examine the range of municipal responsibilities and future limitations and opportunities.

**Overview of Class Project**

**Methodology and resources of ICLEI—Local Governments for Sustainability and CAPPA**

**Discussion of reading assignments and discussion questions**

**Assignments for the next class:**
- McKibben: Read rest of Chapter 3, pages 129-150.
- On the GreenStep Cities Program website:
  - Review Best Practices 1-9
- Review LEED program with a focus on LEED-ND
- Review the Minnesota PBEEP program: [http://www.pbeeep.org/local/](http://www.pbeeep.org/local/)
- Prepare Research Memo (each student/grad student will prepare a minimum of 3/5 Memos and present at least one over the semester on a rotational basis; see Section 7.6. for submission deadlines)

**Class #5: Feb 13**

**LEED—Neighborhood Development—a case study:** The class will examine the potential for redevelopment of the Twin Cities Army Ammunition Plant (TCAAP) site in Arden Hills to LEED—ND standards.

**Organizing Class Project teams**

**Complete Streets, Part 1**

**Discussion of reading assignments and discussion questions**

**Status reports on Class Projects**

**Presentation of Research Memo**

**Assignments for the next class:**
- McKibben: Read first half of Chapter 4, pages 151-186.
- On the GreenStep Cities Program website:
  - Review Best Practices 11 & 14
- Prepare Research Memo (each student/grad student will prepare a minimum of 3/5 Memos and present at least one over the semester on a rotational basis; see Section 7.6. for submission deadlines)

**Class #6: Feb 20**

**Guest speaker:** Richard Carter. He will describe the LEED program including the characteristics of high performance buildings and certification standards.

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9 Rick Carter is the Senior Vice President in LHB’s Minneapolis office where his primary responsibilities include business development, project leadership, and sustainable design on major projects. He has 25 years of experience with LHB and five years with a Washington, D.C. architecture firm, and he specializes in sustainable design. He helped develop the Hennepin County/Minnesota Sustainable Design Guidelines and currently manages the Buildings, Benchmarks and Beyond (B3) Project including execution of sustainable guidelines for the State of Minnesota. He is active on the National AIA Minnesota
Complete streets, Part 2
Discussion of reading assignments and discussion questions
Status reports on Class Projects
Presentation of Research Memo
Assignments for the next class:

- McKibben: Read rest of the book, pages 187-212. Students can submit their Special Research Memo, the position paper on climate change, after completion of this reading assignment. The paper is due by 3/6/15.
- On the GreenStep Cities Program website:
  o Review Best Practices 10, and 17-23
- Prepare Research Memo (each student/grad student will prepare a minimum of 3/5 Memos and present at least one over the semester on a rotational basis; see Section 7.6. for submission deadlines)

Class #7: Feb 27
Guest speaker: Randy Naprash, PE; Bonestroo, Rosene, Anderlik, and Associates, Inc., speaking on the new regulatory framework for stormwater management and water quality improvement.

Carbon Baseline Assessments and Indicators
Discussion of reading assignments and discussion questions
Status reports on Class Projects
Presentation of Research Memo
Assignments for the next class:

- On the GreenStep Cities Program website:
  o Review Best Practices 24-28
  o Review Best Practices 12-13
- Review Complete Streets
- View slide show: http://www.completestreets.org/complete-streets-fundamentals/
- Review the Twin Cities Greenways site: http://www.tcgreenways.org/
- Research Memo # 1, the Climate Change Memo is due by the next class.
- Prepare Research Memo (each student/grad student will prepare a minimum of 3/5 Memos and present at least one over the semester on a rotational basis; see Section 7.6. for submission deadlines)

Class #8: Mar 6 (Midterm)
Guest speaker: Jon Wertjes, P.E., P.T.O.E. Minneapolis Public Works, Director of Traffic and Parking Services

committee on the Environment. Rick is an adjunct faculty member and teaches a graduate-level sustainable design course at the University of Minnesota’s College of Design in the Master of Science in Sustainable Design Program.

10 Randy Neprash is a professional engineer (civil) working as a water resources engineer and stormwater regulatory specialist for Bonestroo, a consulting firm based in St. Paul. He has worked with more than 20 Minnesota cities and the MnDOT Metro District in preparing their National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit applications and pollution prevention programs. He is currently the technical consultant for the Minnesota Cities Stormwater Coalition, an organization of 100 Minnesota cities that are regulated under the MS4 program. Randy is a founding member of the Minnesota Stormwater Steering Committee and recently worked on the LCCMR Statewide Conservation & Prevention Plan and the U of MN Water Sustainability Framework Project.

Variations in this document are likely as the class progresses. Refer to the date on the first page to ensure you have the most recent version.
Syllabus: URBS 481/581 Special Topics: Sustainability Planning
Instructor: J. Michael Orange, 651-457-8793, orange_michael@msn.com

Set-up for case study for the next class (Role Play Exercise)
Discussion of reading assignments and discussion questions
Status reports on Class Projects
Presentation of Research Memo
Assignments for the next class:

- On the GreenStep Cities Program website:
  - Review Best Practices 15, 16
- Review USDA Forest Service i-Tree
- Review Urban Forest Management Tools: http://www.umass.edu/urbanforest/
- Prepare Research Memo (each student/grad student will prepare a minimum of 3/5 Memos and present at least one over the semester on a rotational basis; see Section 7.6. for submission deadlines)

Class #9: Mar 20
Guest speaker: Jeffrey Hafner, Consulting Arborist, speaking on the urban forest as infrastructure and planning for the emerald ash borer infestation

Zoning, site plan review, and other developmental controls—a suburban case study: The class will participate in a role-play exercise that will examine the plans and the politics regarding the redevelopment of a shopping center in West St. Paul. The focus will be from a sustainability perspective as a way to appreciate the importance of rules versus plans.

Discussion of reading assignments and discussion questions
Status reports on Class Projects
Presentation of Research Memo
Assignments for the next class:

- On the GreenStep Cities Program website:
  - Review the Model Ordinances section (http://greenstep.pca.state.mn.us/modelOrdinances.cfm)
- Review Minnesota model ordinances (http://www.crplanning.com/susdo.htm)
- Deadline for submission of the Optional Topic Research Memo #2 is class #10.
- **GreenSteps Cities teams submit approved Scope of Work**
- Prepare Research Memo (each student/grad student will prepare a minimum of 3/5 Memos and present at least one over the semester on a rotational basis; see Section 7.6. for submission deadlines)

Class #10: Mar 27
Guest speaker: Brian Ross, Principal, CR Planning, speaking on model ordinances.12

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11 Mr. Wertjes is a University of Minnesota Bachelor of Civil Engineering graduate with additional coursework in both technical and creative studies from the Northwestern University, University of St Thomas, and the University of Minnesota. He has over 26 years of transportation planning, traffic engineering, and parking experience with the last 15 years at the City of Minneapolis Department of Public Works.

12 Mr. Ross is a co-founder of CR Planning, a planning and consulting firm that works with communities on sustainable development, land use, natural resources, and energy policies, programs, and regulations. He has a Masters degree in Urban and Regional Planning from the University of Iowa and has over twenty years of project management experience. His current projects include managing the “Solar Cities” initiative for Minneapolis and Saint Paul to remove barriers and transform the

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Sustainability planning tools
Discussion of reading assignments and discussion questions
Status reports on Class Projects
Presentation of Research Memo
Assignments for the next class:

- Suggested sites from Ms. Gayle Prest in anticipation of her presentation:
  - Indicators website: http://www.minneapolismn.gov/sustainability/indicators/index.htm
- Review the Minnesota B3 Benchmarking program (also watch 17-minute tutorial): http://www.mnbenchmarking.com/Tutorials.aspx
- Prepare Research Memo (each student/grad student will prepare a minimum of 3/5 Memos and present at least one over the semester on a rotational basis; see Section 7.6. for submission deadlines)

Class #11: Apr 3
Guest speaker: Gayle Prest, Sustainability Manager, City of Minneapolis
Sustainability planning tools (part 2)
The Future is not Completely Set in Concrete
Discussion of reading assignments and discussion questions
Status reports on Class Projects
Presentation of Research Memo
Assignments for the next class:

- Deadline for submission of the Optional Topic Research Memo #3 is class #12.
- Prepare Research Memo (each student/grad student will prepare a minimum of 3/5 Memos and present at least one over the semester on a rotational basis; see Section 7.6. for submission deadlines)

Class #12: Apr 10
Guest speaker: Warren Hanson, President and CEO of the Greater Minneapolis Housing Fund.

market for solar energy; updating the State of Minnesota’s guidebook on sustainable development practices, From Policy to Reality: Model Ordinances for Sustainable Development, including new ordinances for helping cities meet climate protection goals; incorporating agricultural and natural resource protection tools into county and city zoning ordinances; working with city, county, watershed districts, and multiple state agencies on meeting clean water (TMDL) requirements; and assisting in the development of Minnesota’s GreenSteps City program design and best practices for meeting climate protection and sustainability goals.

Gayle Prest is the Sustainability Director for the City of Minneapolis. She works with city departments, other agencies, and the public on a variety of sustainability issues including climate change, solar installations, local food production, and producing the City’s annual sustainability reports. She previously worked for the City managing its environmental regulatory section and in the Public Works Dept. focusing much of her time on environmental policy and communication issues. Prior to this, Gayle spent 13 years at Dakota County managing solid waste policy and household hazardous waste programs.

Warren Hanson, President and CEO of the Greater Minneapolis Housing Fund (GMHF). The GMHF is an affordable housing and community development finance organization serving non-profit organizations, builders and developers with social capital in the form of low cost predevelopment and construction loans, permanent gap financing, capacity building grants, planning services, technical assistance, public policy analysis and research. Emphasis on green building, sustainable community development, supportive housing with services, affordable housing preservation, core neighborhood

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Putting it all together: Integrated Sustainability Plans and Climate Action

Discussion of reading assignments and discussion questions

Status reports on Class Projects

Presentation of Research Memo

Assignments for the next class:

- Review Institute for Local Self Reliance
- Prepare Research Memo (each student/grad student will prepare a minimum of 3/5 Memos and present at least one over the semester on a rotational basis; see Section 7.6. for submission deadlines).
- Prepare Class Project Presentations

Class #13: Apr 17

Guest speaker: David Morris, Vice President, Institute for Local Self Reliance.15 Dr. Morris will talk about local self-reliance, and how the rules we make currently undermine community and how they might be changed. He will also address the issue of equity and connect it to global climate change and peak oil issues.

Climate action plans, energy plans, and sustainability plans

Form-Based Codes and the Ford Plant Site

Hierarchy of Sustainable City Planning Actions and Tools

Class Project Presentations

Discussion of presentations

Presentation of Research Memo

Assignments for the next class:

- Submission of all outstanding Research Memos are due by Class #14
- Prepare Class Project Presentations

Class #14: Apr 24

Guest speaker “Oscars:” Overview of class presentations

Class Project Presentations

Presentation of Research Memos

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revitalization, and foreclosure recovery. Mr. Hanson was the President of the Regional Strategies Group and Deputy Director of the St. Paul Planning and Economic Development Department, City of St. Paul. His priority redevelopment activities with the City of St. Paul included riverfront development, central corridor redevelopment, neighborhood commercial strip revitalization, SBA 504 small business development loans, adaptive re-use of historic properties, mixed use developments, business retention and recruitment, and tax increment and municipal bond financing.

15 David Morris has long been one of the nation’s leading proponents for humanely scaled, community-based, economic systems. Listed by the Utne Reader as one of the top visionaries in America, Dr. Morris is co founder and vice president of the Institute for Local Self-Reliance and Director its New Rules Project (http://www.ilsr.org/). His five non-fiction books range from an analysis of Chilean development, to the future of electric power, to the transformation of cities and neighborhoods. His columns have appeared in over 200 magazines, journals and newspapers, including the New York Times, Washington Post, Wall Street Journal, Japan Times, International Herald Tribune, Smithsonian Magazine, and the Journal of Commerce. He has been a consultant to local, state and federal governments in the U.S. and abroad. He has served as an advisor or consultant to the energy departments of Presidents Ford, Carter, Clinton and George W. Bush. The Institute’s mission is to identify public policies that promote strong, locally owned economies, and to assist communities to move in that direction.

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Course Take-Away

Class #15: May 1
Class Project Presentations
Discussion of presentations
Presentation of Research Memo

Attachments:

1. Sample Research Memo from Mr. Andrew Liska: “Research Memo #5 - Required Readings for Week 6,” 10/4/10
2. Sample Research Memo from Zack Ellsworth: “Transition Towns,” 12/10/12

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The course will end when class discussion is over after the last presentation.
The authors of the attached reports have consented to their use in this report.

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Instructor’s comment: Since Mr. Liska’s Research Memo addressed the required readings, he did not need to obtain prior approval for the topic. His introductions tell the reader about the topic to be addressed, and he includes subheadings that break the body of the memo into manageable parts, most of which he introduces with a topic sentence. He not only summarizes his understanding of the material but also brings in his own opinions and outside research to supplement or contrast with the primary source material. He adds graphics that are appropriately sourced and has concluding paragraphs that summarize the paper.

Date: 4 October 2010
To: Prof. J. Michael Orange
From: Andrew Liska
Re: Research Memo # 5 - Required Readings for Week 6

**MEMO # 5: REQUIRED READINGS**

**Introduction:**

The readings for this week focused on transportation and mobility. Within this subject, I focus on complete streets, mobility and briefly on ride sharing. There were new groups and terms introduced and I will assess them and also provide my opinion regarding their strengths and weaknesses.

**Farr:**

The Farr readings this week covered many aspects relating to transportation and trips in communities. The first article, “Complete Streets” was helpful and demonstrated the characteristics mentioned in a neat bisected model of the roads and sidewalks. The article stressed that streets are no longer serving just the automobile but also the pedestrian, bicyclists, and mass transit riders. The rendition is helpful in identifying how and why the characteristics are applied to an area.

The article also introduces the term “context-sensitive solutions.” Known as CSS, it has recently developed a process for bringing collaborative, multidisciplinary design approach to streets the balances the competing needs of the community. CSS addresses a wide range of objectives including: support for compact neighborhood-oriented development; walk-ability and mixed-uses; multimodal choices; improved compatibility with adjacent land uses; increased amount of high-quality public space; and protection of environmental quality.

It is great that CSS employs a degree of flexibility to the policies by the Federal Highway Administration and the American Association of State Highway and Transportation Officials. This flexibility is ideal especially in allowing communities to gear specific aspects to better serve the people. Allowing engineers the flexibility to propose alternative strategies for achieving safe designs is ideal in combating old, stagnant policy that is difficult to get changed but there must also be a strong sense of responsibility with said power. Overall, the theory behind CSS is great. I feel that it is a stellar way to get around old policies that did not consider complete streets.

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I also liked the article, “Car Sharing.” I am familiar with the general concept but did not understand how the entire process is set up. Car sharing programs are in place so people do not have to own cars but rather have a cheap alternative when a vehicle is needed. The current price of vehicles makes it so people drive their cars as often as possible to get the most for their dollar. Car sharing works in the opposite fashion. People are charged monthly based on their usage, much like electricity. The more trips taken, miles traveled, and time spent in the car are factors that contribute to the monthly charge. This discourages unnecessary trips and increases the use of other forms of transportation.

Again, this is an ingenious idea because it discourages people from driving, especially eliminating unnecessary trips and also encourages other forms of transportation. I know that there are a few places that do this, most notably college campuses. I feel due to the high number of individuals that rely on vehicles combined with introducing the new idea to young, open-minded people makes car sharing programs at public institutions a great idea.

One critique I have of the article was the lack of raw data and charges. I would suspect that with gasoline, insurance, and many other factors the service is likely would be costly, and yes may discourage trips. I question if calling a cab would be cheaper and more convenient. People would be able to carry the same amount of groceries or other items whether they were driving or a cab driver was. I wish solid number were included to compare the two and perhaps question why people prefer car sharing to cab rides.

Complete Streets:

The National Complete Streets Coalition advocates for streets that are designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists, and transit riders must be able to safely move along and across a complete street. The first step in creating complete streets is changing the mindset that the main purpose of roads is to get vehicles from point A to point B as quickly as possible.

Complete streets are unique to every area. There is not a model that can serve every area, however; many complete streets share some of these common characteristics. They include: sidewalks, bike lanes or wider paved shoulders, special bus lanes, comfortable and accessible transit stops, frequent crossing opportunities, median islands, accessible pedestrian signals, and curb extensions.

I really like many of the characteristics of complete streets. Nothing seems more dangerous than bikers on busy roads along with cars traveling at a high rate of speed. I used to bike to many destinations and found that biking on the roads that would get me there the quickest were often the most dangerous so I would typically stick to the back streets. This was time consuming and I eventually stopped biking due to the dangerous aspects of the busy roads and the significance time difference back-roads and the routes on the main road that are the quickest route. I would be much more likely to start riding again if my community had complete streets.

I also like how complete streets does not merely focus on the street layout and characteristics but also policy. Plans can be the ideal fit for a community but if they are not implemented with policy, they will never happen. Focusing on policy will force communities to look at complete streets.
Citizen advocacy is also a critical aspect of complete streets. Similar to policy, if there is no advocacy, communities will continue to build streets as they always have. In the Twin Cities recently there was a large biking event around White Bear Lake. The emphasis was to show the pedestrian friendly sections around the lake and also the not-so-pedestrian friendly parts. White Bear Lake added some complete street characteristics to the community and the tour demonstrated the good and the bad. It is this type of public attention that community leaders pay attention to and implement change.

Minneapolis has a large number of complete streets with bike lanes as well as on-the-street parallel parking. This is the first of its kind in the Midwest and even across the United States. People in the community wanted increased bike lanes and wanted a more bike-able community and now Minneapolis is ranked as the most biker friendly city in the US according to many sources including the Bicycling Magazine. (http://www.bicycling.com/news/featured-stories/1-bike-city-minneapolis) Not bad for having snow on the ground for almost half the year. Although the ridership is not as strong in the winter months, there is still a sizable population that commutes to work via bicycle all year round.

As more streets are designed with everyone in mind, rather than just the automobile, the number of people using different forms of transportation will increase, as will overall health and safety of the community.

Many Types of Complete Streets Slide Show:

As the slide show demonstrated, there really are an infinite number of aspects that can go into a complete street. It can be as simple as painting a wider shoulder on the side of a rural road so people would have a defined place to be on the street and as complex as redoing main street complete with bike lanes, specially designed lanes for buses, curb/sidewalk bump outs to reduce the time spent in the intersection and bus shelters with closer access to the road.

A critique I have of the photos of the complete main streets is that the parallel parking is on the side of the street and the bike lane is next to the moving lanes of traffic. In order to get in and out of the parking spots, automobiles have to travel through the bike lane. This is a dangerous aspect of the plan and is inviting accidents between automobiles and bicycles.

Minneapolis solved this issue by having the bike lane next to the sidewalk and having parallel parking next to the moving traffic lanes. Proper signage is of great assistance to confused motorists as the layout is unique. This layout results in much safer streets for bicyclists.
Conclusion: The assigned readings for this week were very enlightening. I had a more rigid view on complete streets than what actually constitutes as one. Simple complete street are beneficial in serving all forms of transit. Also, I had never considered how typical housing design prohibits senior citizens and their well being through stairs. Ride sharing also is a great idea for people that do not rely on vehicles but rather use them out of convenience when grocery shopping and the like. Other aspects of transportation, mobility, and the movement of older generations and the youth through, ride sharing, demonstrated valid points that need to be considered when planning the city of the future.
“If someone said, 'how's your marriage?' and you said, 'oh, it's sustainable,' well that's not all that great” –Toby Hemenway, Author of Gaia's Garden.\(^{18}\)

Since the beginning of the modern environmental movement, there have been buzzwords that have attempted to capture the whole of what the movement stands for and hopes to accomplish. In the decade just passed, the so-called concept of “Going Green” has gradually been replaced at the avant-garde with the concept of sustainability. The reason often given is to attempt to go beyond the amorphous goal of “going green” to instituting real, verifiable systems that can be continued indefinitely without hampering future generations’ ability to do the same. But, as Hemenway alludes to, this concept is at best a base level of existence, pushing the adherent only to the level of doing no harm, but no further. In the light of ongoing flux and uncertainty from climate change and peak oil production, sustainability again seems to fall short. Sustainable for how long and according to which of many diverse possible futures?

It seems a new term is needed; one that is responsive to uncertainty and many contingencies. “Resilience” fits that need and more. It combines the best elements of the environmental movement: forethought, care for human and ecological communities, cooperation, localization, and acknowledgment of the crises of climate change and peak oil, with the best elements of libertarianism: self-reliance, entrepreneurship, adaptability, and preparedness. This makes it a term that, rather than being just another buzzword destined for the social scrap heap when a new, trendier word comes along, has a chance to transcend political divides and promote a productive, mutually-beneficial transition to a society which can be embraced by people across the political spectrum. This is a word that invokes a society that can withstand external shocks that can quickly change what is sustainable and what is not; shocks like the failure of a staple crop, rising fuel prices that make transportation and commerce more difficult, or more often and/or stronger storms.

One movement that embraces the concepts embodied in “resilience” is the Transition Network. One of the co-founders of the movement, Rob Hopkins, was searching for an example of a city that used permaculture concepts, systems thinking, and sustainability thinking as a matter of policy. However, he failed to find any city like that and so started putting together a framework to help cities start the conversations that would lead to them charting a course to get through peak oil together and emerge on the other side as resilient cities.\(^{19}\) The organization he was working for at the time put together a 20-year plan for the town they were in in the U.K.\(^{20}\) When Hopkins moved to the town of Totnes, he brought

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20. Ibid. 

*Variations in this document are likely as the class progresses. Refer to the date on the first page to ensure you have the most recent version.*
that idea with him and set up the first Transition Town organization there in 2006\textsuperscript{21}. In just three years there were over 160 official Transition Town initiatives around the world\textsuperscript{22}.

Transition groups often take the form of citizen advocacy groups that start by promoting one of the goals of the Transition movement, such as promoting local food through a garden share program, which connects people who have land to garden, with people who would like to garden but have no land\textsuperscript{23}. In Waiheke, New Zealand, Transition has taken the form of a garden center, which provides public space for education, idea sharing, and community gathering, as well as food plants and educational resources for sale\textsuperscript{24}. In Llandello, U.K., the Transition Town group has installed an outdoor classroom in the form of an orchard at a local elementary school to help students there learn to grow food for themselves\textsuperscript{25}.

But the Transition movement is about much more than just local, resilient food systems. Transition Lewes, in the U.K. has created a local currency, the Lewes Pound, to help keep more money in the community, to promote entrepreneurship, and to tie money more closely to local assets\textsuperscript{26}. Many Transition groups offer trainings for other groups to do things like envision their city in a low energy future and set a course of concrete action steps to get there\textsuperscript{27}. When the causes of the Transition movement are taken up by local governments, they can create government/citizen partnerships called Transition Authorities, which work together to further the Transition cause using the resources and influence of both\textsuperscript{28}.

The Transition movement is itself resilient because, rather than focusing narrowly on a single organizational form or cause, it takes the form and promotes the causes that local participants feel most passionate about, while working toward the same general goal of creating a civilization that can withstand the uncertainties and challenges into the future. The movement can be citizen or government led and can change as it grows and the needs of the members change. It is a quickly growing movement that is one of the best, action-oriented answers to the growing problems of climate change and peak oil. Any local government would be wise to use its framework to help co-create a resilient future with its citizenry.

**Bibliography**


\textsuperscript{21} Ibid.
\textsuperscript{22} Ibid.
\textsuperscript{23} Ibid.
\textsuperscript{24} Ibid.
\textsuperscript{25} Ibid.
\textsuperscript{26} Ibid.
\textsuperscript{27} Ibid.
\textsuperscript{28} Ibid.