

**THE COLLEGE OF URBAN PLANNING AND PUBLIC AFFAIRS  
URBAN PLANNING AND POLICY PROGRAM**

**UPP 557:  
STRATEGIC SPATIAL PLANNING  
(SITE PLANNING)  
FOUR HOURS  
6:00 PM – 8:50 PM, Monday, 2232 2ADH  
Kheir Al-Kodmany, Ph.D.  
Associate Professor  
Kheir@uic.edu  
Office Phone: 312-413-3884  
Office hours: Online or by appointment**

With the assistance of Professor Asli Ceylan Oner  
from Florida Atlantic University, [aoer@fau.edu](mailto:aoer@fau.edu)

## **SYLLABUS and Projects Descriptions**

This is a new course that meets the needs and requirements of the new landuse track within the physical planning concentration. The new course departs from the traditional sense of site planning and from the way we have taught it in the past 20+ years. Now, it deals with the larger issues of “site planning,” and I renamed it as “Strategic Spatial Planning.”

In this re-designed class we will examine the spatial structure of the “New Metropolis” across the geographic scale: from the regional, to the city, suburb, and block. The central theme is Retrofitting the Suburbs: A response to foreclosing the American Dream. We will focus on two regions (Metropolitan Areas): Chicago and Miami. These two metropolitan areas are selected based on their distinct urban growth characteristics. While Miami has reached its natural growth boundaries and high-density is a necessity, in Chicago, high-density development is viewed as a means to combat vast urban sprawl. Also, these two regions enjoy different economic functions, sizes, density, vertical density, urban patterns, mass-transit, building typology, and climatic conditions, which make the comparisons more interesting.

Through four projects we will make comprehensive analytical examinations and propose visions and policies:

- Project One: General Regional and Sub-Regional Analysis.
- Project Two: In-depth Analysis and Policy Recommendations.
- Project Three: Crafting Eco-Suburbia Master Plan (with focus on TOD).
- Project Four: Inventing Eco-Block Model for Eco-Suburbia.

Because this is a new course, there will be some freedom in the ways and means of answering the projects' questions and responding to the projects' requirements. Also, the geographic scale and nature of the projects point to that direction.

### **Course Goals**

- Develop a deeper understanding of planning issues and policies across the geographic scale.
- Gain analytical skills through comparing regions and sub-regions of different urban growth strategies.
- Learn about developing master plans and “green policies.”
- Earn spatial reasoning and analytical skills.

### **Projects Goals**

- Examine the growth and decline of U.S. suburbs in relation to their regional context.
- Understand the urban-suburban flux and demographic shifts.
- Understand the spatial interdependence among suburbs and downtowns.
- Search for strategies to retrofit suburbs.
- Examine eco-suburbia solution and eco-block models.
- Investigate the roles of density, urban form, street patterns; housing and transportation; and demographic shifts; and foreclosure spatial patterns.

### **Course Requirements, Points**

- |                 |    |
|-----------------|----|
| • Project One   | 20 |
| • Project Two   | 20 |
| • Project Three | 20 |
| • Project Four  | 20 |
| • Term Paper    | 20 |
| • No Final Exam |    |

The term papers are carried out by students individually.

### **Course commitment**

The university has a general policy on students' commitment to registered classes. Each student is required to work weekly on the course about 9 hours minimum beyond the class hours. In workshops and studios, students may be required to work longer hours. The course projects are heavy but rewarding.

### **Policy of Attendance**

Attendance of all classes is required. If you miss a class due to illness, you should inform the instructor or present a doctor's note in order to have these absences excused.

Failure to attend three or more class sessions (un-excused ones) will reduce your grade by a whole letter (an A becomes a B, a B a C, etc.). Late arrivals, 10 minutes or more, will count as absences. Please plan your schedule accordingly.

**Policy of Deadlines**

Deadline extension will not be granted without prior approval by the instructor. The following formula will be used for late submission:

1 calendar day late	-25% of the grade value of the assignment
2 calendar days late	-50%
3 calendar days late	-75%
4+ calendar days late	no credit

**Deadlines****Project One papers**

February 6

Please email report to the instructor and copy Professor Oner

**Project One presentations**

February 7

Please copy your presentation to the teaching computer on the day of presentation.

**Project Two papers**

March 13

Please email report to the instructor and copy Professor Oner

**Project Two presentations**

March 14

Please copy your presentation to the teaching computer on the day of presentation.

**Project Three papers**

March 27

Please email report to the instructor and copy Professor Oner

**Project Three Presentations**

March 28

Please copy your presentation to the teaching computer on the day of presentation.

**Project Four papers**

April 10

Please email report to the instructor and copy Professor Oner

**Project Four presentations**

April 11

Please copy your presentation to the teaching computer on the day of presentation.

### **Term Paper presentations and papers**

Monday, April 25.

Please email your papers to the instructor by April 24.

### **Official Holidays**

Martin Luther King Day, Monday, **January 17, 2011**—No classes.

Spring vacation, **March 21–25**, M–F,. No classes.

The class has no final exam (no class on May 2), and the last class is on April 25.

April 18, *possibly* no class, instructor out of town.

### **Course Format**

This is an intensive workshop course where it emphasizes learning by investigating, inquiring, applying, and doing. Students will apply into this workshop their planning knowledge and experiences.

Students are required to come to class on time (6:00 PM) each session and should report on their work progress to the instructor. I'll be taking attendance at the beginning of each class.

The class will be divided into multi-disciplinary teams. Each team should bring laptops and necessary materials and tools in order to make the class period productive. Expected class size is 25 students.

We will be working mainly in the assigned classroom. Some groups are allowed to use the UPP computer room when needed.

### **Teams and Regions**

In the first project, the class will be divided into two prime teams; one will examine Chicago and the other Miami. Chicago is divided into counties and Miami is divided into “urbanized areas.”

In the subsequent projects the prime teams will be subdivided into two sub-teams so that each team will handle, compare, and contrast two suburbs.

Professor Asli Ceylan Oner from Florida Atlantic University agreed to help us. She offered her services to answer any questions. Teams may direct questions to her at [aoner@fau.edu](mailto:aoner@fau.edu). She already compiled a sheet with hyperlinks to information on Miami region uploaded on the BlackBoard “Resources\_Miami\_Ceylan,” and shared with us some of her work.

### **Methods**

*Inductive analysis.* We do not know much about the examined regions. We will make extensive map-based analysis to reach an understanding of the examined issues.

*Deductive analysis.* We have in mind a few issues we care about regarding the suburbs such as Greenfields, transportation, landuse, ecological infrastructure, and we will try to learn about them through map-based analysis.

*Quantitative information.* We will utilize statistical data as a means of describing urban and regional conditions.

### **Sources of Information**

Gather abundances of information (statistics, maps and data from the Internet) about the assigned regions and suburbs from various sources such as:

#### **Regional Organizations, Municipalities, Villages, Local Government, Planning Agencies, etc.**

For each region, there are specific governmental and non-governmental organizations that are in charge of urban growth activities, such as CMAP for Chicago. These organizations are good sources of information and they often make information accessible through their websites. They provide reports and maps that answer many of our projects' questions.

#### **Google Earth maps**

Google Earth and other aerial photography websites provide excellent maps. You can use these maps as base-maps and trace over them to delineate for example the urban envelop and region's boundaries. Also, you can draw on Google maps to show areas and regions and other geographic features.

Google Earth provides aerial photographs that go back in time (about 10-20 years). These aerial photographs help in contrasting the region, the city, neighborhoods at different timeframes.

There are also other websites that provide useful aerial photographs of the urban and suburban areas.

#### **Google Maps**

Google Maps and other map sources are increasingly informative. They provide useful information at multiple geographic scales. At the finer scale, maps are hyperlinked to street-level photographs, nodal movies, movie clips, wide-views, animation, etc.

#### **GIS maps**

GIS data and maps are increasingly available via multiple websites of Federal (e.g. Census Data Bureau), State, City, Municipalities, Villages as well as other planning and GIS organizations.

#### **UIC Library.**

**APA library:**(312) 431-9100, 122 S Michigan Ave # 1600, Chicago, IL 60603.

#### **Supportive readings and materials**

Relevant book chapters, articles and materials will be posted on the blackboard, project by project.

Also, the following books may shed some light.

- *Foreclosing the Dream: How America's Housing Crisis Is Reshaping Our Cities and Suburbs*, published by the American Planning Association (APA), William H. Lucy. <http://www.planning.org/newsreleases/2010/feb25.htm>
- *The Sprawl Repair Manual*. Galina Tachieva.

#### **Other interesting work:**

The Compact City: A Sustainable Urban Form? Edited by Mike Jenks, Elizabeth Burton and Katie Williams Oxford Brookes University, Oxford, UK.

Edge City: Life on the New Frontier, Joel Garreau

The Sustainable Urban Development Reader (Routledge Urban Reader Series).

The Environmental Brief: Pathways for Green Design, Richard Hyde, Steve Watson, Wendy Cheshire, and Mark Thomson, 1999.

A Green Vitruvius: Principles and Practice of Sustainable Architectural Design. The European Commission, Directorate General XVII for Energy and the Architect's Council of Europe, 2007.

## Projects Background

The U.S. is the most well known country for the development of low-rise suburbs. Large tracts of land were available around cities, gasoline was cheap for car travel, and families wanted to leave the busy and crowded business centers. For the past 50 years we have been growing out—extending beyond the limits of existing settlements and converting farmland, deserts, and forests into building sites. However, suburban sprawl is today facing serious problems, and we lack policies that address them.

### **Summary of problems facing American suburbs:**

“Without doubt, suburbia will at some point come to an end, because this way of life is becoming unsustainable economically, energy-wise, and ecologically for the wider masses.” (East and West Review, Analytics Agency: <http://eastwest-review.com/article/american-suburbs-what-went-wrong-part-iii>)

**Foreclosure.** While urban neighborhoods are improving, suburbs are suffering from massive closures and decline in jobs, and quality of life. Suburbs suffer from high rates of foreclosures compared to lower rates in cities. Urban neighborhoods have more than doubled their share in 15 regions and the increase had been particularly dramatic over the past five years. The trend is continuing in the wake of the real-estate market downturn. The market became flooded with foreclosed houses of people who were not able to make their mortgage payments anymore.

**Poverty.** For the first time in history, the level of poverty in the suburbs became higher than the level of poverty in the cities—and that tendency is continuing.

**Unemployment.** The problem of poverty in the suburbs is being intensified by the recent mass layoffs. The United States are not known for a developed system of social benefits. That is why even a relatively low (by European standards) unemployment rate of 10% causes a real crisis in American society. Another old problem, which promotes pauperization of the suburbs is the outsourcing of high-paying middle class jobs to even poorer states, or overseas, to Mexico and China.

**Crime.** While there is no official data from US national statistics on crime in the suburbs, but media reports indicate that crime has worsened in the suburbs. According to the last report of New York City's police commissioner, the crime rate is falling in the city and rising in its suburbs.

**Office space vacancies.** The market for office space in the suburbs is getting left behind. For decades, the suburbs benefited from companies seeking lower rent, less crime and a shorter commute for many workers. But now, office buildings in many city downtowns have stopped losing tenants or are filling up again even as the office space in the surrounding suburbs continues to empty, a challenge to the post-war trend in the American workplace and a sign of the economic recovery's uneven geography.

***Demographic change.***

- *Decline in prime house purchase age.* Empty nesters and young singles-two of the faster growing segments of the population- desire urban living over suburban living. The number of households in the 30 to 45 age group has declined by 3.4 million since 2000. Similarly, the number of households in the 25-29 age group has dropped by 400,000.
- *Age demographic change.* From 205-2009, there were 1.5 million more households age 65 and up, and 3 million more households age 55-64; which led to a glut of suburban houses to sell.
- *Decline in homeownership rates.* Rates for ages 25 to 29 and 30 to 34 have fallen 5% from their peaks.
- *Fewer houses with children.* In 1950, 50% of households had children comparing to 33% of households in 2010 have children.
- The stereotypical "white flight exodus" from central cities has been reversed in most large metropolitan areas.
- Immigrants who make almost third of the population tend to seek out urban settings.

***Long commute.*** Suburbanites are tired of long commute and congestions, standing in traffic for hours as slaves of their cars.

***Energy crisis.*** The rise in gas prices is making commuting less affordable. Experts believe that if the price of gas reaches \$5 per gallon, then the entire American way of life will change.

***Over-built.*** "We built too much of the American Dream and now it is haunting us."

<http://eastwest-review.com/article/american-suburbs-what-went-wrong-part-iii>

Research predicts that by 2025 there will be a surplus of 22 million large houses (with 1/6 acre or more land, which is about 700 sq. meters) in the country. This attracts more and more lower class families deeper into the suburbs in their attempts to find affordable housing. The lowering of the standard of living of the population of suburbs threatens big changes and social problems.

***Attractive urban living.*** Urban cores have witnessed a considerable revival that made urban living attractive. The city has attracted youth. In the past two decades, life in the centers of large cities has grown in prestige in the eyes of young, influential, educated and childless class. High population density, the ability to walk to a needed destination, mixed blocks in the downtown are experiencing gentrification, at the same time as the poor population is being pushed out into the suburbs, migrating in search of cheap apartments for rent. A city core revival signified by increase in condominium ownership at a rate of 93% between 200-2009.

***"Green" policies.*** Suburbs have already taken too much of the Greenfields and farmland, and have caused significant environmental and ecological damage. In response, political support for compact development, transit investments, and awareness about climate change all point to a dramatic shift in development patterns," often challenge the "American Dream" of living in spacious low-density sprawling suburbs.

## **Project One**

### **Understanding the Region's Growth and Decline: Analysis, observations, and discovery**

## Goals and Objectives

The overarching goal of the first project is to provide a general, descriptive and analytical account on the status of two regions (with focus on the interrelationship between urban cores and suburbs) over the past two decades (1990-2010).

## General tasks

- Gather as much as possible of information that provides a *general* description of the regions. Search for/produce data, maps of Google Earth (2D and 3D Maps), GIS maps, abstract maps, statistical maps, freehand maps, remote sensing maps, night-time maps, and diagrams, charts, graphs, photographs, etc. or any data that address the scope of our project. (You may produce maps, modify existing ones, or just “copy and paste”). We use the issues related to the decline of the suburbs as a guide for investigation (as mentioned in the Projects Background Section). There is some freedom in describing a region, but some basic elements are population, geographic coverage, number of counties, basic statistics about counties, suburbs, employment, transportation, etc.
- Compare and contrast suburban versus urban (city cores) dynamic on growth and decline. At the present many city cores and neighborhoods witness a revival. How does this compare and relate to growth/decline of the same region’s suburbs. See the reports on construction residential trends and other materials on the blackboard.

## Specific tasks

- Create spatial anatomy maps of each region. Simplify graphics. Discover the patterns of edge cities, edgeless city, urban cores, sub centers, etc.. Show on maps major landuses and major transportation routes. Annotate maps with important information. See Lang’s et. al. book chapter, Beyond Edge City. Also, for graphics see the paper by M. Southworth. One way to do this is to divide the region into sections (for example 5x5 square-miles tiles, or divide by counties) and make each at a time and then piece together the mosaic.
- Create composite maps that show three elements: density, landuse (in a generic and outline format), and street pattern of samples of square miles that illustrate various gradient density in the region. For convenience in computation, divide the mile into 16 tiles. Augment the abstracted maps with snapshots of aerial photographs as shown in the work of Julie Campoli and Alex S. MacLean on visualizing density provided in the blackboard). This will help to explain the polycentric nature of the regions.
- Create systems of central places maps as illustrated in the work of Brian Berry on the blackboard. Central places could be generalized so that we capture the dynamic among major areas of the region. Your maps could be drawn based on available data, such as GIS data. Alternatively maps could be based on anecdotal observations of the region through aerial photographs.

## Notes

Density is measured by population and number of units per a geographic area such as an acre or a mile. Try to provide both types of density.

Each team is about 12 students. You may divide tasks among yourselves so that each sub-team tackles a single task comprehensively.



## Deliverables

PowerPoint presentations. Two presentations: one by Chicago team and one by Miami team.

25-pages summary report that highlights key findings. Two reports: one by Chicago team and one by Miami team.

## Project Two In-Depth Analysis of Selected Suburbs (outline)

Examine in-depth the following suburbs, which experience rapid changes, on issues such as:

**Job and housing market, transportation, automobile street network, mass-transit, walkability, bikeability, land utilization, density, vertical density, spatial patterns, heights and massing, architectural and perceptual characteristics, green design, human scale, and amenities, etc..**

Each team will compare and contrast 4 suburbs within each region. Each team may divide into sub-teams but should compare notes and contrast results.

### Miami

*Coral Gables*

*Sunny Isles Beach/Aventura* (two adjacent cities)

*Coral Springs*

*Cypress Creek Area in Ft. Lauderdale*

(Approximate boundaries of Cypress Creek: US 441 west, Dixie Highway east, NW 69<sup>th</sup> St (McNab Rd) north, 53<sup>rd</sup> St. South)—Cypress Creek is not a city; it is a distinct part of Ft. Lauderdale, which really changed in the last ten-fifteen years.

### Chicago

*Evanston*

*Schaumburg*

*Arlington Heights*

*Oak Brook*

## Tasks

- Provide context maps to the examined suburbs. Context maps show relationships of the examined suburbs to the region. They show boundaries major transportation routes and inter-connectivity.
- Provide maps and data that explain the concerned issues as mentioned above.
- Create general density maps, landuse, and street pattern maps from aerial photographs for each square mile of the concerned suburb. The computational method is the same way as we did in the first project.
- Review and examine future growth plans, projections, and scenarios.
- Make policy recommendations to the overall regions and specific suburbs.
  - Should we set urban growth boundaries around regions?

- In order to promote compact development and protect farmland, should we rezone rural residential to agricultural use?
- Should policies discourage encroachment on Greenfield by placing special tax fees on developing these land?
- Should policies encourage developing in-fill suburbs in order we achieve higher densities in strategic areas in the suburbs?
- Should policies encourage or discourage vertical density, i.e. high-rise development?
- Would improving suburban conditions be a necessity in order to alleviate pressure and demand on urban settings?
- What to do when low-income households are displaced from cities to inner suburbs?
- Can central parts of suburbs be reconfigured as urban centers?
- Should we and how can we revise our lending policies and practices?
- Can we re-direct urban growth to inner-suburbs as a way to balance regional growth?
- What suburbs are most strategically located to play that role?

### **Deliverables**

PowerPoint presentations. Two presentations: one by Chicago team and one by Miami team.

25-pages summary report that highlights key findings. Two reports: one by Chicago team and one by Miami team.

## **Project Three Eco-Suburbia Master Plan (outline)**

**The overarching goal of the third project is to provide prescriptive visions on retrofitting the suburbs in order to make them sustainable.**

Eco-Suburbia is an urban planning approach that aims at arriving at healthy relationships among suburbs and in the context of their region. It gears at improving suburban conditions without compromising on the environmental well-being. The approach is comprehensive for it considers the macro and micro conditions and searches for healthy relationship between the urban and natural environments. The work will be inspired by green research and applications across many planning, environmental and urban design.

**Create a Master Plan.** Illustrate your vision by creating a master plan. You may use maps and/or 3D SketchUp software to create your master plan. Think about green policies and concepts related to such as:

- Density/ vertical density /compactness/urban form. A central challenge of the eco-suburbia is dealing with density. There are distinct benefits and disadvantages of density as mentioned in the following section (Benefits and Disadvantages of compact development). We must deal and address these issues. Can our studies discover “eco-density?”

- **TOD.** This is critically important and we should address it comprehensively. There is abundance of information and project examples on TOD on the B.B.
- What landuse mix, housing, density, and landscape would make suburbs attractive, affordable, and sustainable?

### **Deliverables**

PowerPoint presentations. Two presentations: one by Chicago team and one by Miami team.  
25-pages summary report that highlights key findings. Two reports: one by Chicago team and one by Miami team.

### **Benefits and Disadvantages of Compact Development**

A growing body of research shows that concentrating homes, jobs, schools, and shops into a smaller area will help us prosper, protect our environment, and strengthen our communities. One study analyzing the fiscal benefits of channeling higher density growth into existing areas of Massachusetts found that \$11 billion could be saved over the course of 25 years. Most of the savings would go to home buyers and developers, but local and state governments also stood to gain (Burchell 2003).

**Land.** Living closer together helps save agricultural and resource land. The typical suburban density of three units per acre requires four times as much land as a medium density of 12 units per acre. The significant impact of low-density is realized when applied in large scale. For example 5000 new homes at a suburban low-density would require 1250 more acres of land.

**Infrastructure.** Compact development saves on all types of infrastructure (sewer, water, roads, electricity, etc.) because it translates into fewer pipes and polls, and less asphalt and concrete. Because of economy of scale, it also entails lower construction costs for developers, and operational costs for the municipalities (Muro and Puentes, 2004).

**Transportation.** In compact development, people drive less in pursuit of services. Families in low-density regions like Houston and Atlanta spend more than \$8000 per year to get around, while those in Chicago averaged \$5000 according to McCann 2000. Families may use savings to improve qualities of life in their homes and neighborhoods.

**Environment.** Compact development uses fewer energy resources and generates less pollution than suburban neighbors. People in compact development drive less because of the nearby services and amenities that lead to shorter distances and fewer trips. Compact development are likely to provide additional options of transportation such as walking and biking that would lead to less starting up cars-a significant source of harmful emissions. Fewer vehicle miles travelled translate into lower amounts of volatile organic compounds, nitrogen oxides, and particulates that pose risks of asthma and cancer. An urban resident living at the density of 12 units per acre generates about one-third less all to these harmful emissions than someone driving the miles necessary to live with average suburban density of three units per acre.

**Global warming.** The automobile is responsible for emitting a lower amount of the pollution that causes global warming-10.4 tons of greenhouse gases per year at 12 units per acre versus 16 tons at three units per acre (Holtzclaw n. d.). Compact development generate high concentrations of pollutants, but on a per

capita basis residents of leafy suburbs are far more responsible for air pollution and global warming than their urban neighbors.

**Energy.** Compact development requires less energy to serve, less gasoline to access, less oil or natural gas to heat, and less electricity to cool. Detached homes use 85 to 99% more energy than attached houses of equal size. The owner of three-units per acre, detached, suburban house uses an average of 440 million British thermal units (Btus) per year compared to 360 million Btus per year for his urban counterparts living in an attached townhouse at the density of 24 units per acre (Allen and Mckeever 1996).

**Economy.** Compact development is needed to support local economy. For example, neighborhood shopping center with local goods such as convenience items, videos, or a dry cleaner needs a minimum of 3000 people within a 3 mile radius to be viable; a supermarket requires far more-40,000 residents within 3 to 6 miles (Beyard and O'Mara, 1999).

**Amenities.** Compact arrangement gives an opportunity to promote urban life characterized by abundance of choices diverse and specialized services and shopping available in close proximity. Simple amenities, such as corner café and grocery stores within walking distance, are possible to provide in a compact arrangement.

However, density is criticized for creating problems such as overcrowding, traffic congestions, little privacy, polluted air, noise, away from nature, and the like. These are the very same problems that triggered massive migration from city to suburbs. Psychologically, we are predominantly a nation of single – family home owners. We are accustomed to a lot of space between our neighbors and ourselves. Many people view density as a threat, believing that it leads to sinking property values, rising crime, and traffic congestion.

## **Project Four**

### **Eco-Block Model**

(outline)

Create an eco-block model for the eco-suburbia vision. Eco-block is a new concept that materializes many of the green ideas into new development models. See:

<http://bie.berkeley.edu/ecoblocks>

In this project we will try to improvise the eco-block to fit eco-suburbia.

**Create 3D models of eco-blocks.** Use 3D SketchUp to create 3D models representing your eco-blocks visions. The eco-blocks rendering should be crisp and clear with considerable details.

#### **Deliverables**

PowerPoint presentations. Two presentations: one by Chicago team and one by Miami team.

25-pages summary report that highlights key findings. Two reports: one by Chicago team and one by Miami team.

## Research Paper

### Thematic Topics on Site and Spatial Planning

Please select one of the following topics. You may choose topics other than the ones on the list. I'll place students' paper examples of previous years on the blackboard. You may build your paper on these paper samples or a paper you submitted to other class but you should not submit the SAME paper again for this class.

1. Bicycle infrastructure
2. Complete Streets
3. Green Infrastructure
4. Green Transportation
5. Green Streets
6. Transit-Oriented Development
7. New Parking Solutions, Technologies, Policies, and Regulations
8. Urban Density
9. Renewable Energy Sources: Solar Energy
10. Renewable Energy Sources: Wind Power
11. Renewable Energy Sources: Biofuel
12. Renewable Energy Sources: Geothermal
13. Renewable Energy Sources: more..... Tides, Rain, Biomass, Hydroelectricity, Wave power,  
.....
14. Recycling
15. Recycled buildings materials and constructions
16. Site planning issues of elderly and the disabled
17. Site planning and technology and science
18. District Energy
19. Smart Growth
20. Urban Sprawl
21. Global Warming

#### Paper Structure-- Guidelines

Components
• Abstract
• Introduction/overview
• Definitions
• Historical background
• Trends
• Taxonomy
• <b>Case Studies</b>
• Conclusions
• References

<b>Case Study structure</b>
• Short summary (what is about)
• Background
• Specific concepts and policies examined
• Supporting factors
• Indicators of success/failure
• Learned lessons

**Deliverables:**

- Well-written research paper about 5,000 words plus images, maps, photographs, charts, and illustrations.

(Single-spaced page yields about 500 words using Times New Roman 12-point font).

Please use Times New Roman 12-point font.

Please name your digital files using your first and last names, for example:

- **Paper\_John\_Smith.doc**

In terms of file format, you may use the MS 1997-2003 format.

All submissions will be digital as well as hard copies.

[accounts@uic.edu](mailto:accounts@uic.edu)