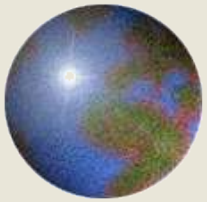


Urban Geography: overview

Lecture Notes

Urban Hierarchy

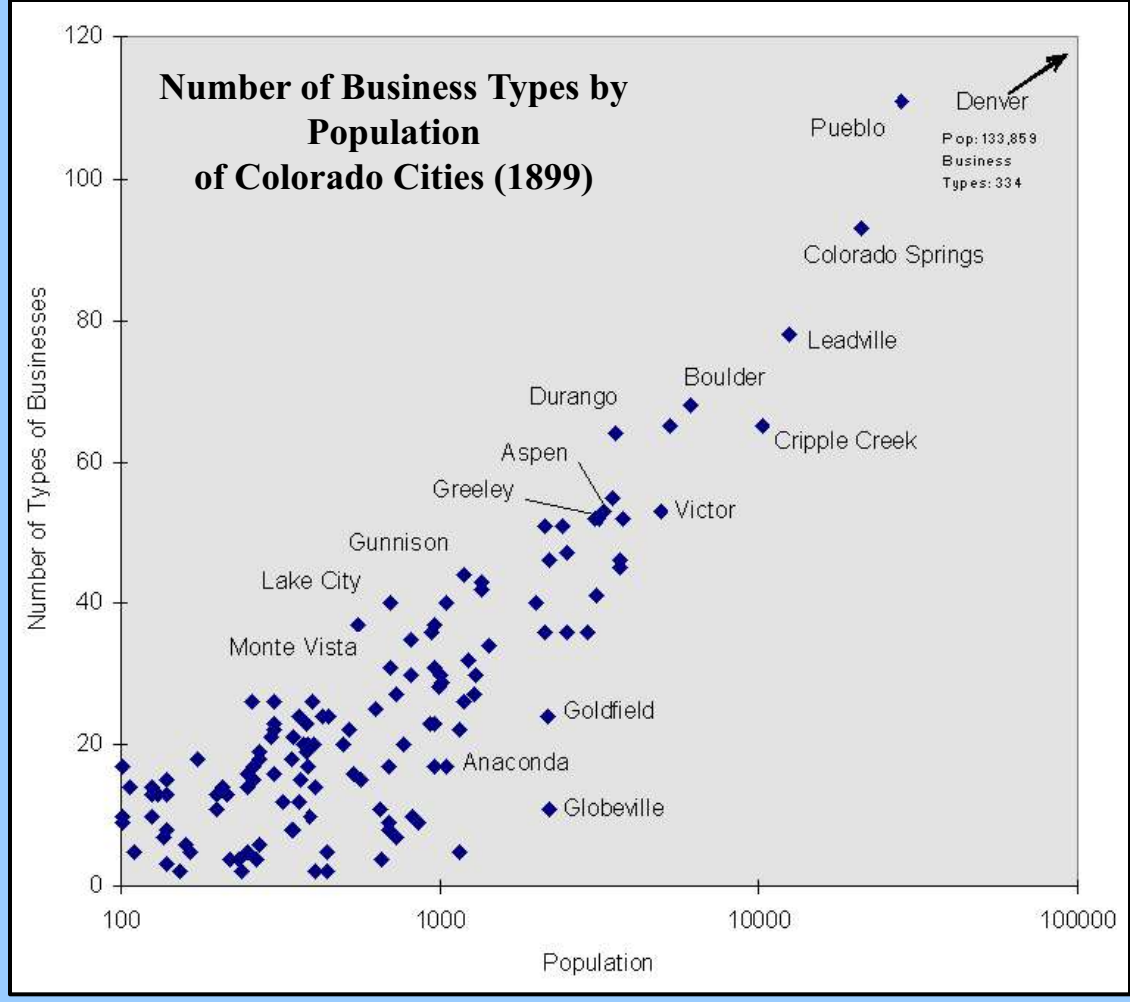
System of cities with various levels

Few cities at top level

Increasing number of settlements at each lower level

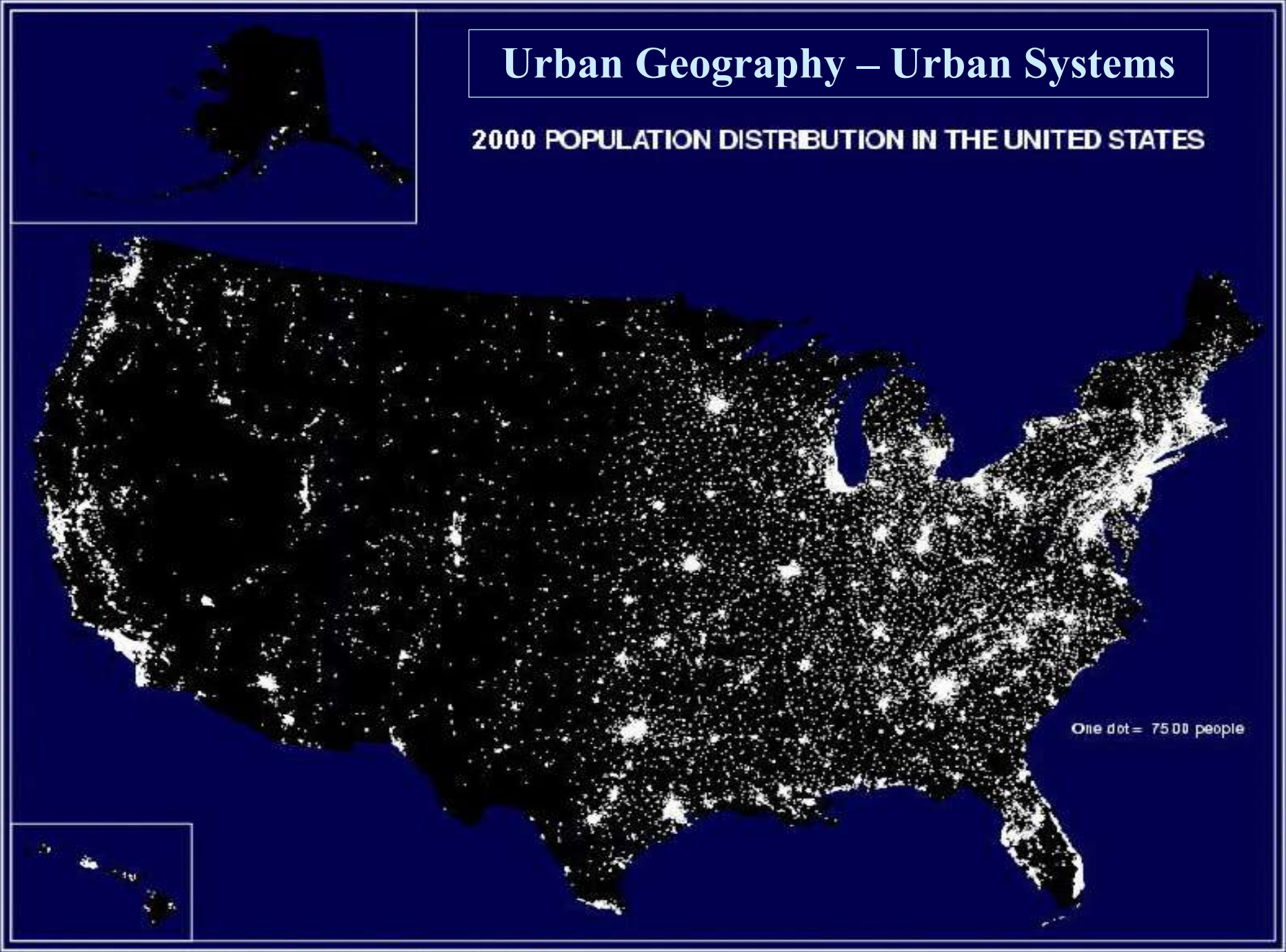
Larger cities provide more services than smaller towns

– exists at regional, national, and global scales



Graph from Kuby, HGIA

Urban Geography – Urban Systems



Ranking of Census MSAs (Metropolitan Statistical Areas) of U.S., 2005

MSAs with populations over 2 million (right)

24 more MSAs have pops between 1 and 2 million

47 more (1 in CO) between 500,000 and 1 million

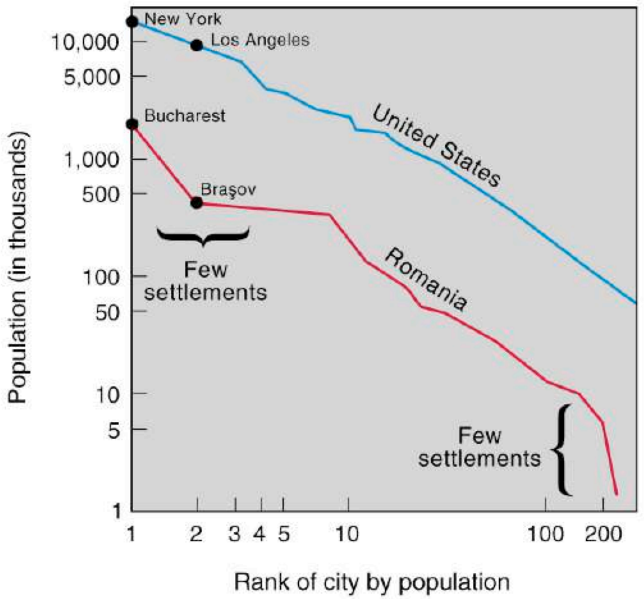
74 more (2 in CO) between 250,000 and 500,000

169 more (3 in CO) bet. 100,000 and 250,000

Rank	Central Cities of Metro Statistical Areas	2005 Population
1	New York–Northern New Jersey–Long Island	18,818,536
2	Los Angeles–Long Beach–Santa Ana	12,950,129
3	Chicago–Naperville–Joliet	9,505,748
4	Dallas–Fort Worth–Arlington	6,003,967
5	Philadelphia–Camden–Wilmington	5,826,742
6	Houston–Sugar Land–Baytown	5,539,949
7	Miami–Fort Lauderdale–Pompano Beach	5,463,857
8	Washington–Arlington–Alexandria	5,290,400
9	Atlanta–Sandy Springs–Marietta	5,138,223
10	Detroit–Warren–Livonia	4,468,966
11	Boston–Cambridge–Quincy	4,455,217
12	San Francisco–Oakland–Fremont	4,180,027
13	Phoenix–Mesa–Scottsdale	4,039,182
14	Riverside–San Bernardino–Ontario	4,026,135
15	Seattle–Tacoma–Bellevue	3,263,497
16	Minneapolis–St. Paul–Bloomington	3,175,041
17	San Diego–Carlsbad–San Marcos	2,941,454
18	St. Louis	2,796,368
19	Tampa–St. Petersburg–Clearwater	2,697,731
20	Baltimore–Towson	2,658,405
*	San Juan–Caguas–Guaynabo	2,509,007
21	Denver–Aurora	2,408,750
22	Pittsburgh	2,370,776
23	Portland–Vancouver–Beaverton	2,137,565
24	Cleveland–Elyria–Mentor	2,114,155
25	Cincinnati–Middletown	2,104,218
26	Sacramento–Arden-Arcade–Roseville	2,067,117
	Source: U.S. Census Bureau Estimate	

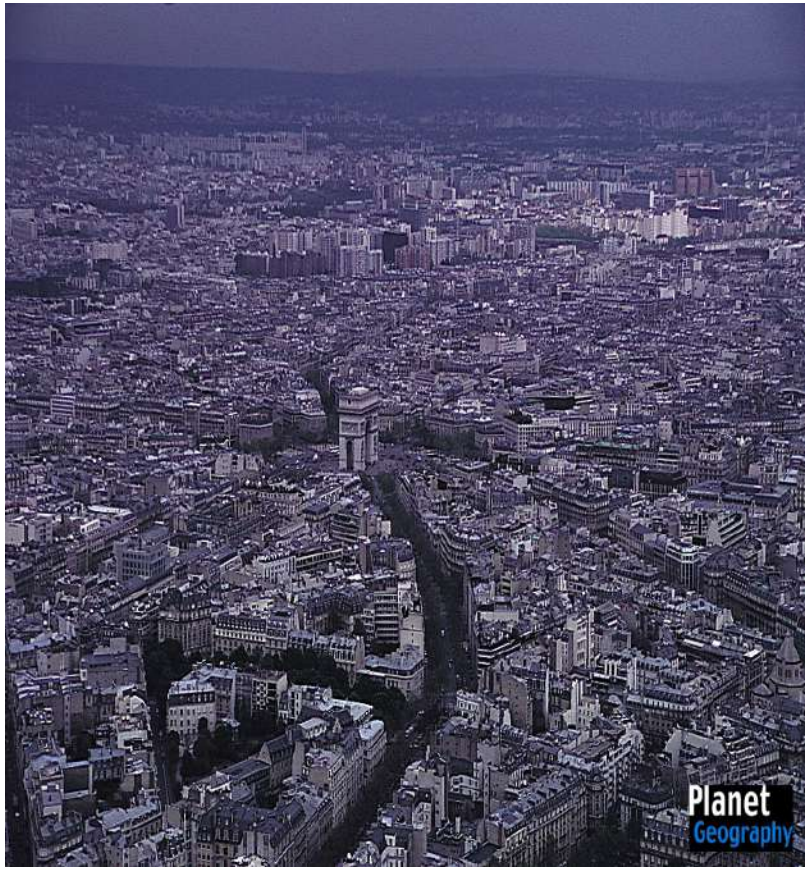
Rank-size Rule

- Rank Size Rule
  - N^{th} largest city of a national system will be 1/n the size of the largest city.
  - Example - US is close to this model - mot a good model for newly urbanized countries ie LDC



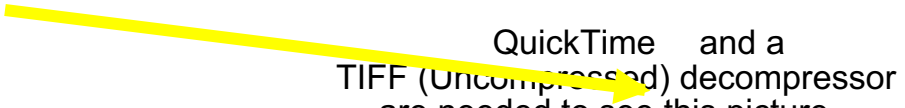
Primate City

- One dominate city in a country or region.
- There is usually not an obvious second city
- Example - Paris France - 8.7 million next city Marseille - 1.2 million

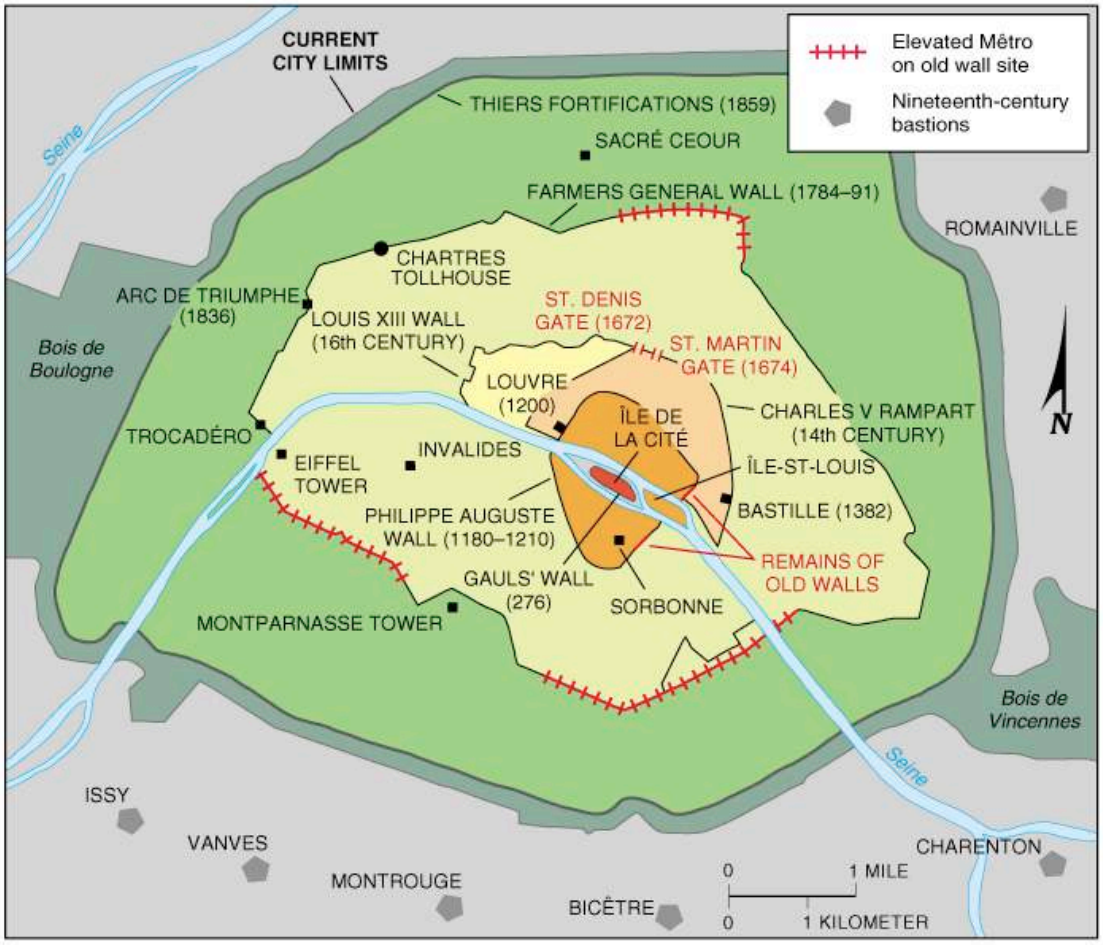


Mexico Primate City

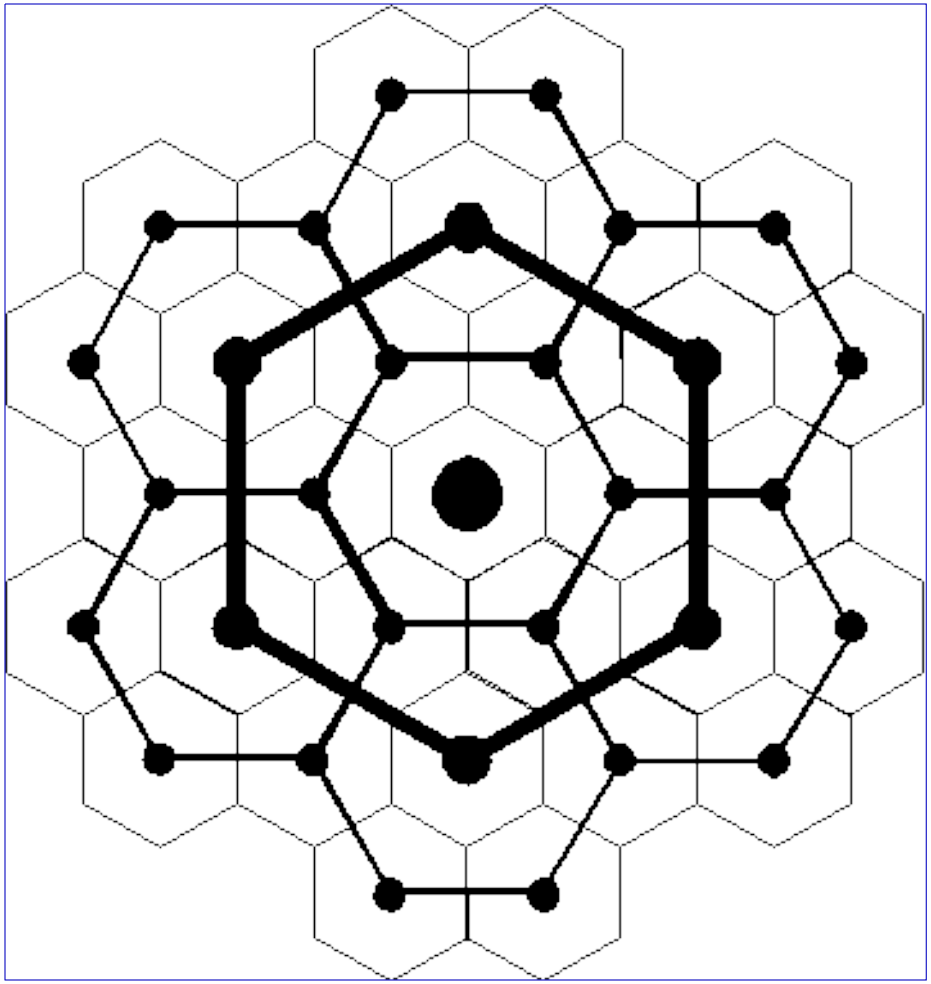
- Mexico is an excellent example of a Primate City model.
- Mexico City is dominate city in Mexico



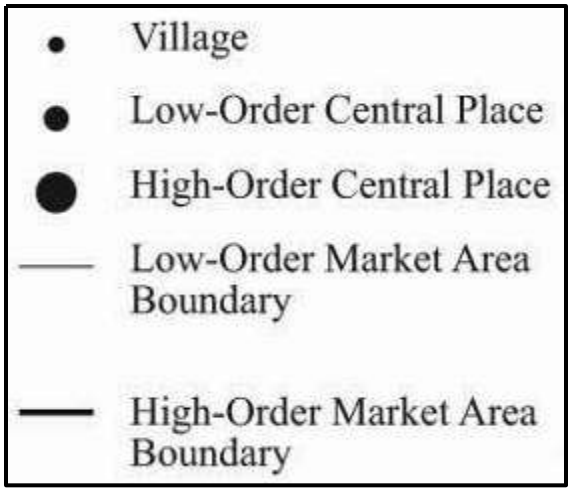
Paris historical site and growth



Central Place Theory

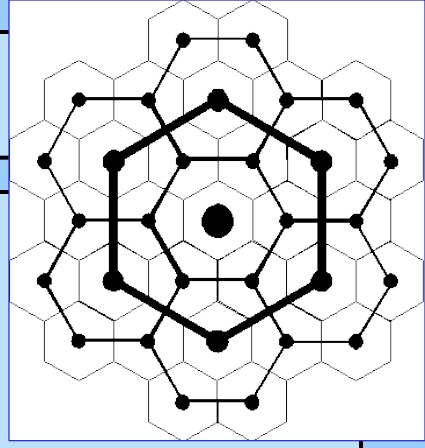


Nested hexagonal market areas predicted by Central Place Theory



Spatial model of settlements (central places) for a nested hierarchy of market areas

Central Place Theory



- **Geographic assumptions** (Christaller, 1930s)

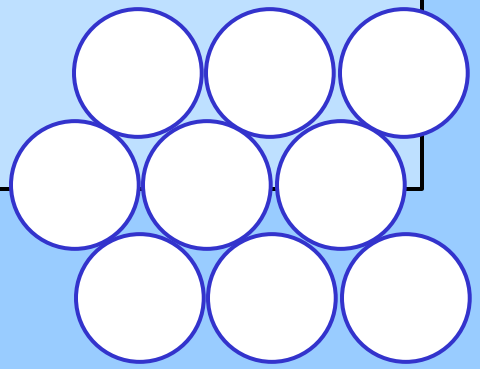
- featureless landscape on infinite plane
- uniform population distribution

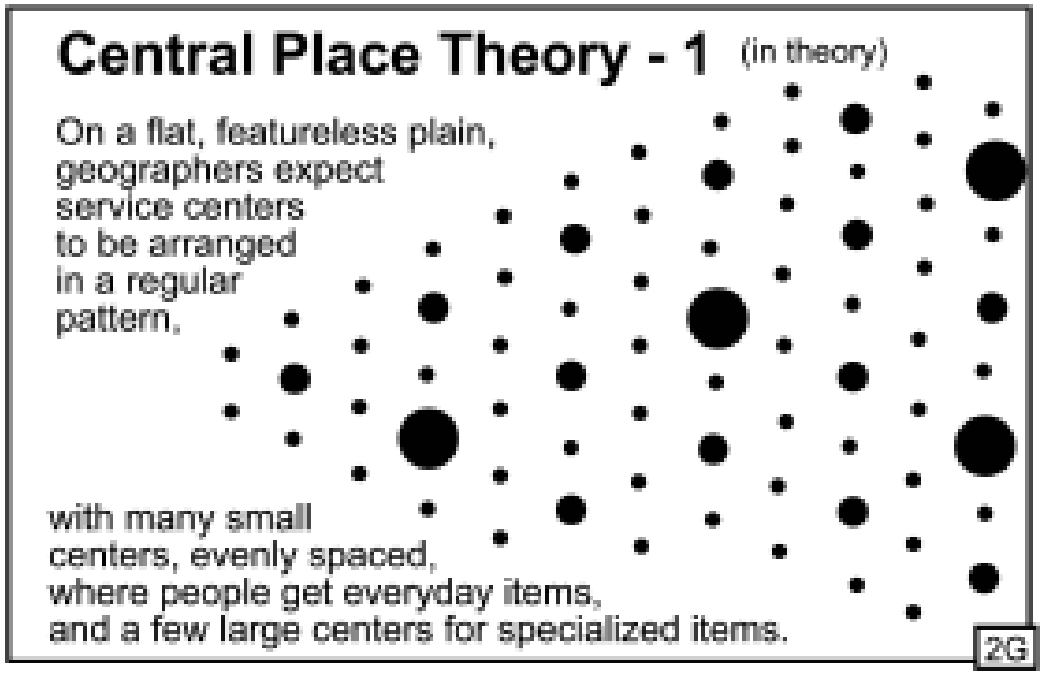
- **Behavioral (economic) assumptions**

- consumers shop at closest place possible
- consumers do not go beyond the range of the good
- market areas equal or exceed threshold of good

- **Hexagonal market areas are most efficient**

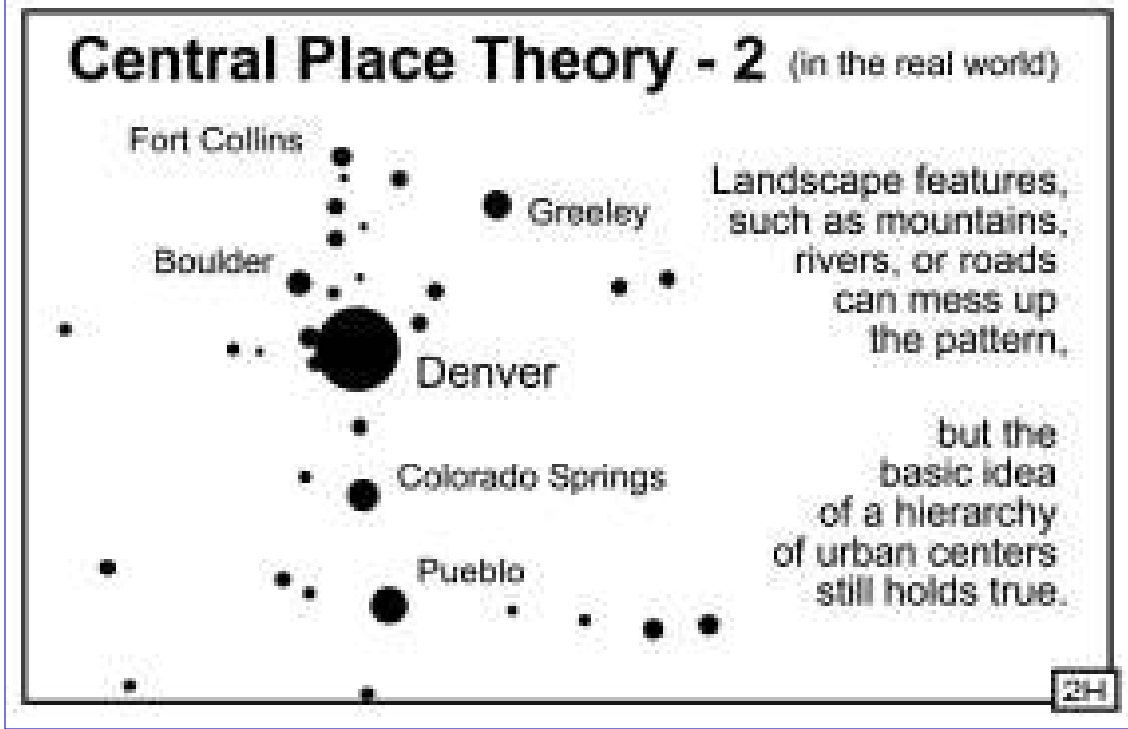
- non-overlapping circles leave areas unserved
- higher-order central places also provide lower-order functions



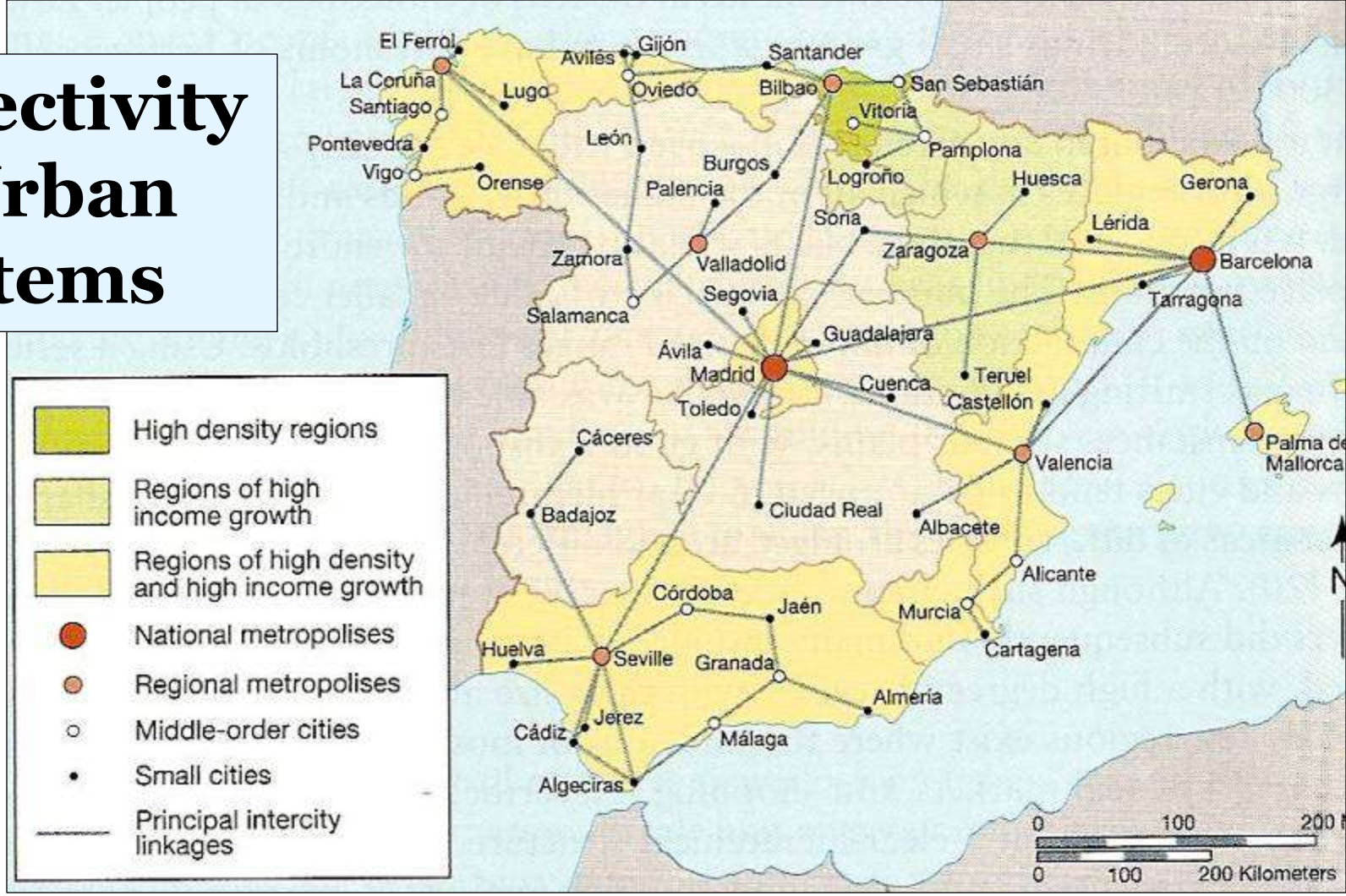


Central Place Theory in action on a flat, featureless plain (e.g., Northern Germany)

… and in a landscape with "locational biases" introduced by physical features



Connectivity of Urban Systems



Spain's national urban system

National metropolises have greater connectivity than regional metropolises or small cities

World Urban System

Plot these cities to see where the world's ten largest cities were located in 1950. Symbolize each with a circle ⭘.

Top Ten Cities,1950 ***(estimated from various sources)***

City	Pop (in millions)	Lat	Long
New York, USA	12.340	N	74 W
London, UK	8.752	N	0
Tokyo, Japan	6.935	N	135 E
Paris, France	5.449	N	2 E
Moscow, USSR	5.456	N	37 E
Shanghai, China	5.331	N	121 E
Essen (Ruhr), Germany	5.351	N	7 E
Buenos Aires, Argentina	5.034	S	58 W
Chicago, USA	4.941	N	87 W
Calcutta (Kolkata), India	4.422	N	88 E

Plot these cities on the world map to see where the ten world's most populated cities will be in 2015. Symbolize each with a square ☐.

Top Ten Cities, 2015 ***(estimated from various sources)***

City	Pop (in millions)	Lat	Long
Tokyo, Japan	28.9	35 N	135 E
Mumbai (Bombay), India	26.2	19 N	73 E
Lagos, Nigeria	24.6	6 N	3 E
São Paulo, Brazil	20.3	23 S	46 W
Dhaka, Bangladesh	19.5	23 N	90 E
Karachi, Pakistan	19.4	25 N	69 E
Mexico City, Mexico	19.2	19 N	99 W
Shanghai, China	18.0	31 N	121 E
New York, USA	17.6	40 N	74 W
Kolkata (Calcutta), India	17.3	22 N	88 E

Place an ***X*** on each city as it is named on the following 12 lists. Each list identifies the top 5 cities as ranked according to its provision of certain services (Taylor 2005).

As cities are named more than once, just keep adding more X's.

Banking $

London

New York

Tokyo

Hong Kong

Singapore

Producer Services $

London

New York

Hong Kong

Paris

Tokyo

Management ✈

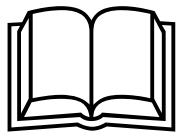
New York

London

Paris

Madrid

Stockholm

Law 

London

New York

Frankfurt

Hong Kong

Washington DC

Insurance ☠

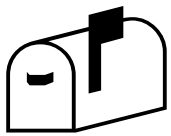
London

New York

Hong Kong

Los Angeles

Paris

Advertising 

New York

London

Hong Kong

Toronto

Sydney

Media ♫

London

New York

Paris

Los Angeles

Milan

Architecture/Engineering 

London

New York

Beijing

Singapore

Shanghai

United Nations Agencies

Geneva

Brussels

Addis Ababa

Cairo

Bangkok

National Diplomatic Missions

Washington DC

New York

London

Tokyo

Paris

Humanitarian & Environmental NGOs ☺

Nairobi

Brussels

Bangkok

London

New Delhi

Scientific Research

London

Los Angeles

San Francisco

Boston

Basel

Geneva

New York

Top-tier World Cities
London
New York
Tokyo

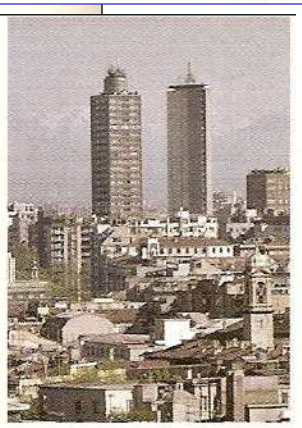
2nd-tier World Cities
Brussels
Chicago
Frankfurt
Los Angeles
Paris
São Paulo
Singapore
Washington, DC
Zürich

3rd-tier World Cities
Amsterdam
Bangkok
Berlin
Buenos Aires
Hong Kong
Houston
Johannesburg
Madrid
Manila
Mexico City
Miami
Milan
Mumbai (Bombay)
Osaka
Rio de Janeiro
San Francisco
Seoul
Sydney
Taipei
Toronto
Vancouver

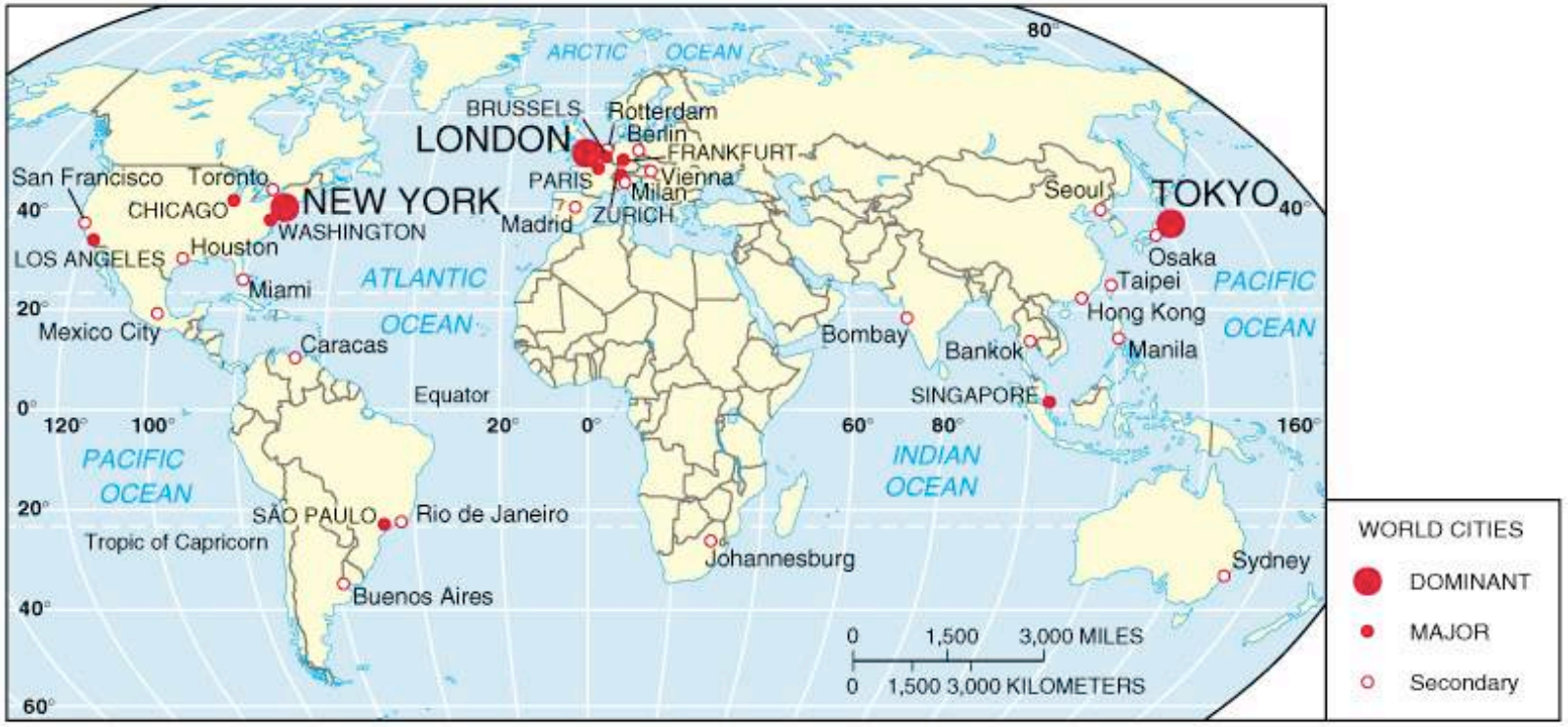
"World cities are not simply the world's largest … cities. Rather, they are the **control centers for the global economy,** places where critical decision making and interaction take place with regard to global economic, cultural, and political issues" *(Knox and Marston 2001, p. 426).*

"WORLD CITIES"

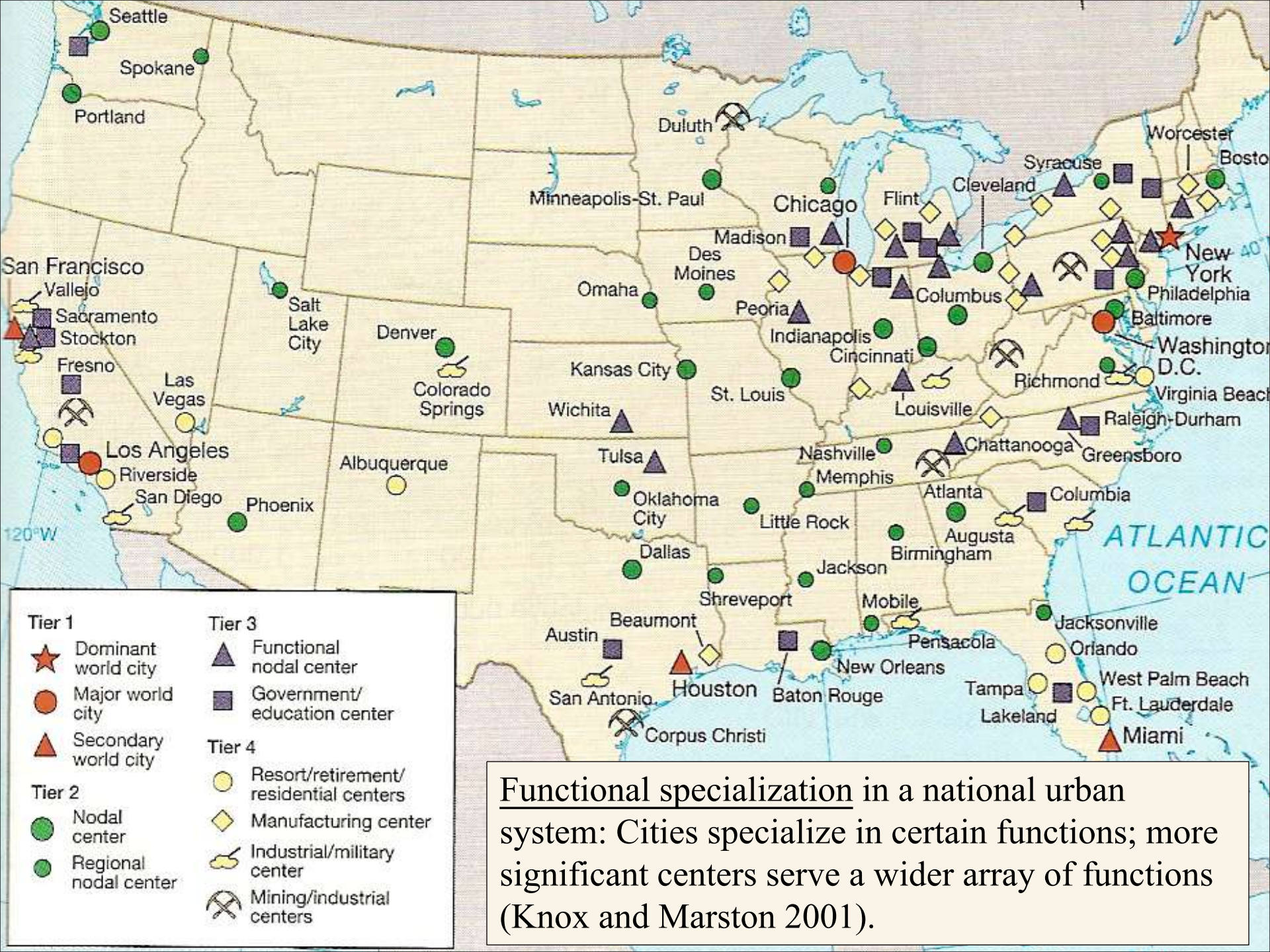
Brussels qualifies as a world city because it is the administrative center of the European Union and because it has attracted a large number of nongovernmental organizations that are transnational in scope.



Milan has global status in terms of cultural influence (especially fashion and design) and is an important regional financial center, but it is relatively dependent in terms of corporate control and information-processing activities.


ARCTIC OCEAN
80°
BRUSSELS
Rotterdam
LONDON
Berlin
FRANKFURT
PARIS
Vienna
Milan
ZURICH
Madrid
NEW YORK
WASHINGTON
CHICAGO
San Francisco
Toronto
LOS ANGELES
Houston
Miami
Mexico City
Caracas
ATLANTIC OCEAN
Seoul
TOKYO
Osaka
Taipei
Hong Kong
Manila
Bombay
Bankok
SINGAPORE
PACIFIC OCEAN
INDIAN OCEAN
Equator
Tropic of Capricorn
SÃO PAULO
Rio de Janeiro
Buenos Aires
Johannesburg
Sydney
40°
20°
0°
120°
100°
20°
0°
60°
80°
160°
0 1,500 3,000 MILES
0 1,500 3,000 KILOMETERS
WORLD CITIES
DOMINANT
MAJOR
Secondary


Seattle
Portland
San Francisco
LOS ANGELES
Phoenix
Denver
Minneapolis
Kansas City
St. Louis
CHICAGO
Indianapolis
Cincinnati
Cleveland
Columbus
Boston
NEW YORK
Philadelphia
Baltimore
Washington
Atlanta
Dallas
Houston
New Orleans
Miami
PACIFIC OCEAN
ATLANTIC OCEAN
0 200 400 MILES
0 200 400 KILOMETERS
45°
40°
35°
30°
25°
120°
115°
95°
90°
85°
WORLD CITY
DOMINANT
MAJOR
Secondary
COMMAND & CONTROL CENTER
Regional
Subregional
SPECIALIZED PRODUCER-SERVICE CENTER
Functional
Government/ Education
DEPENDENT CENTER
Resort/retirement
Manufacturing
Industrial/Military
Mining



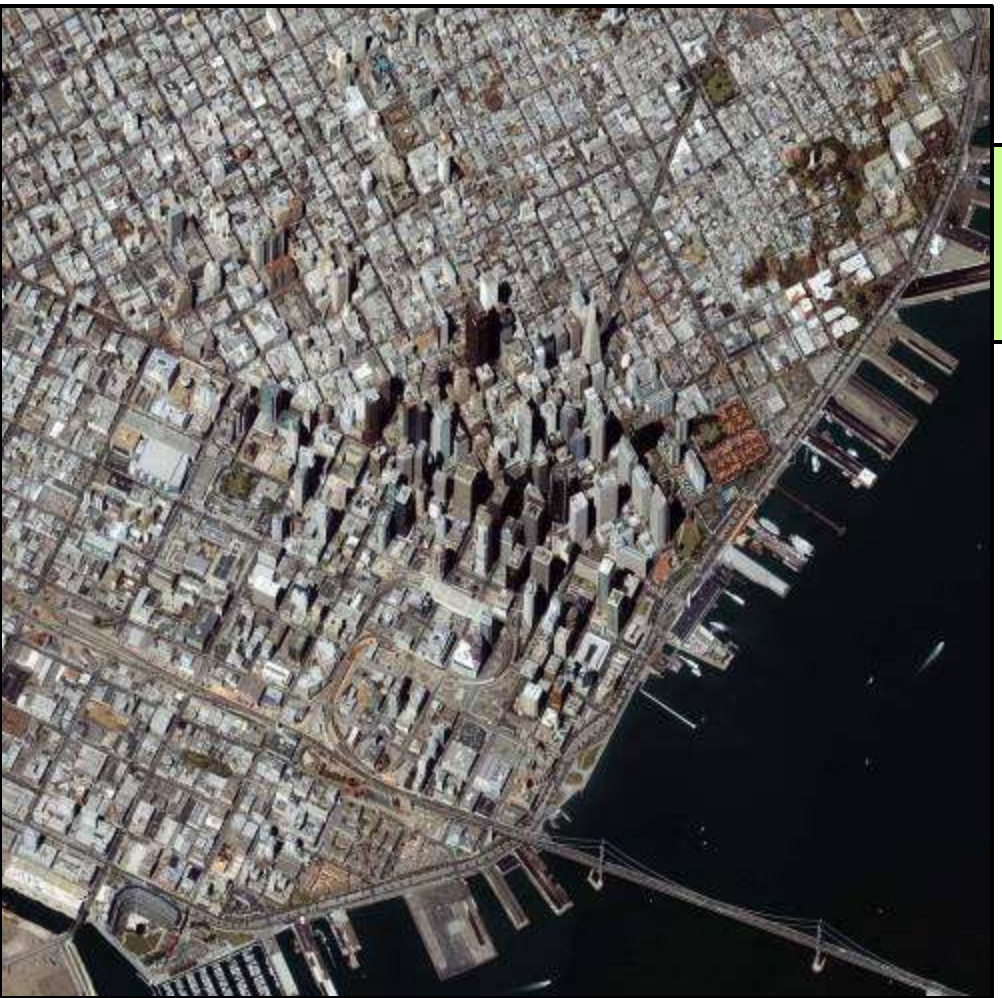
Functional specialization in a national urban system: Cities specialize in certain functions; more significant centers serve a wider array of functions (Knox and Marston 2001).

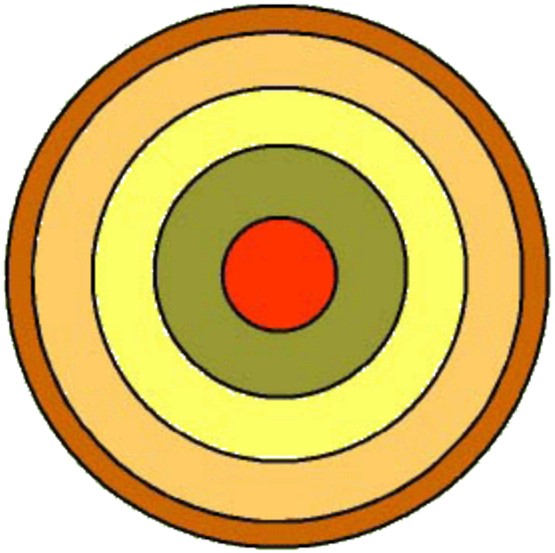
Spatial Models of Urban Land Use (Ch. 10)

Sketch the layout of land uses of a town or city you know well

Concentric Ring Model

1920s (Burgess) – land-use pattern follows concentric rings around city center (CBD)

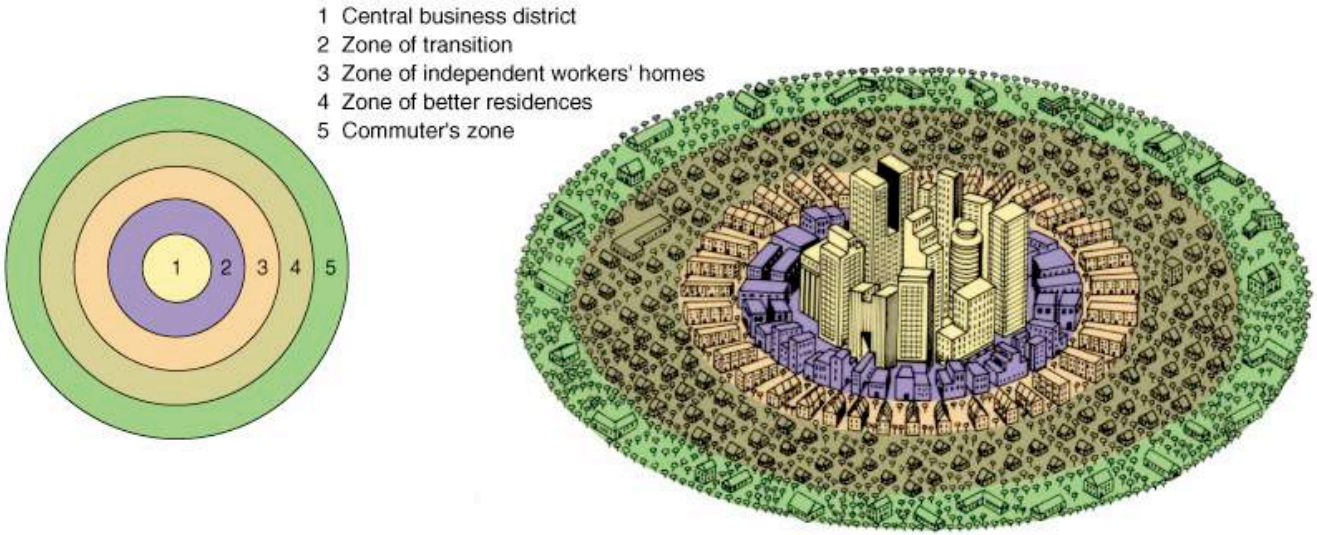




Newest settlers in city use older housing near city center (migrants to industrial jobs)

Previous groups move outward to higher-income areas as they assimilate

Concentric Zone Model



Sector Model

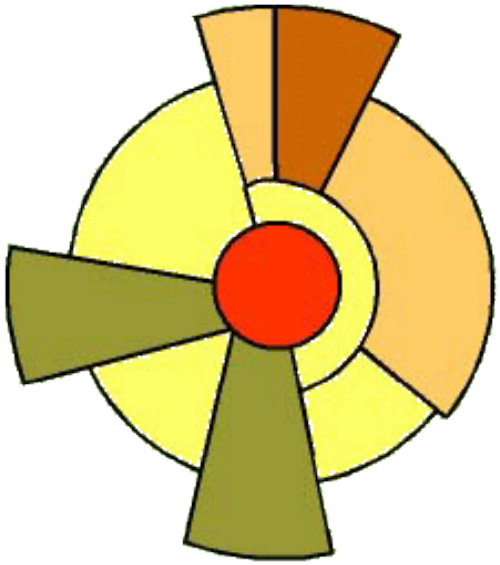
1939 (Hoyt) - Land uses in pie-shaped wedges radiating from CBD

High-income areas along fashionable boulevards, waterfronts, or high ground

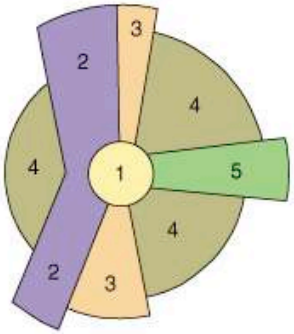
Industry along river or rails

Low-income near industry

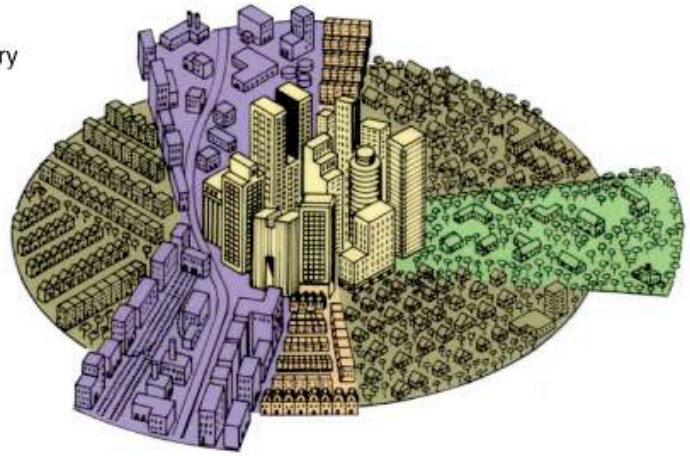
Middle-income between low and high sectors



Hoyt Sector Model



1. Central business district
2. Transportation and industry
3. Low-class residential
4. Middle-class residential
5. High-class residential



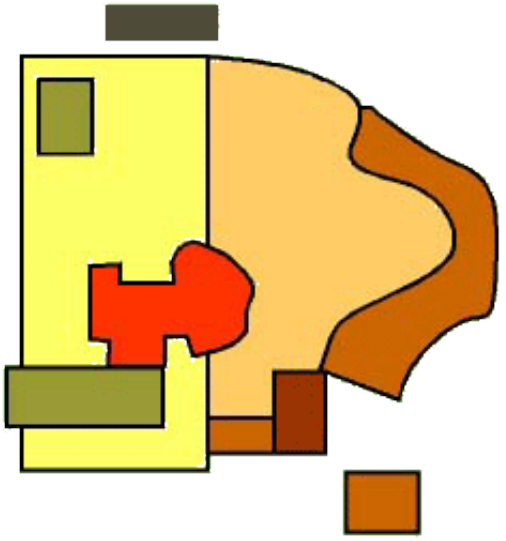
Multiple-Nuclei Model

Post WW2 - Early days of suburbanization

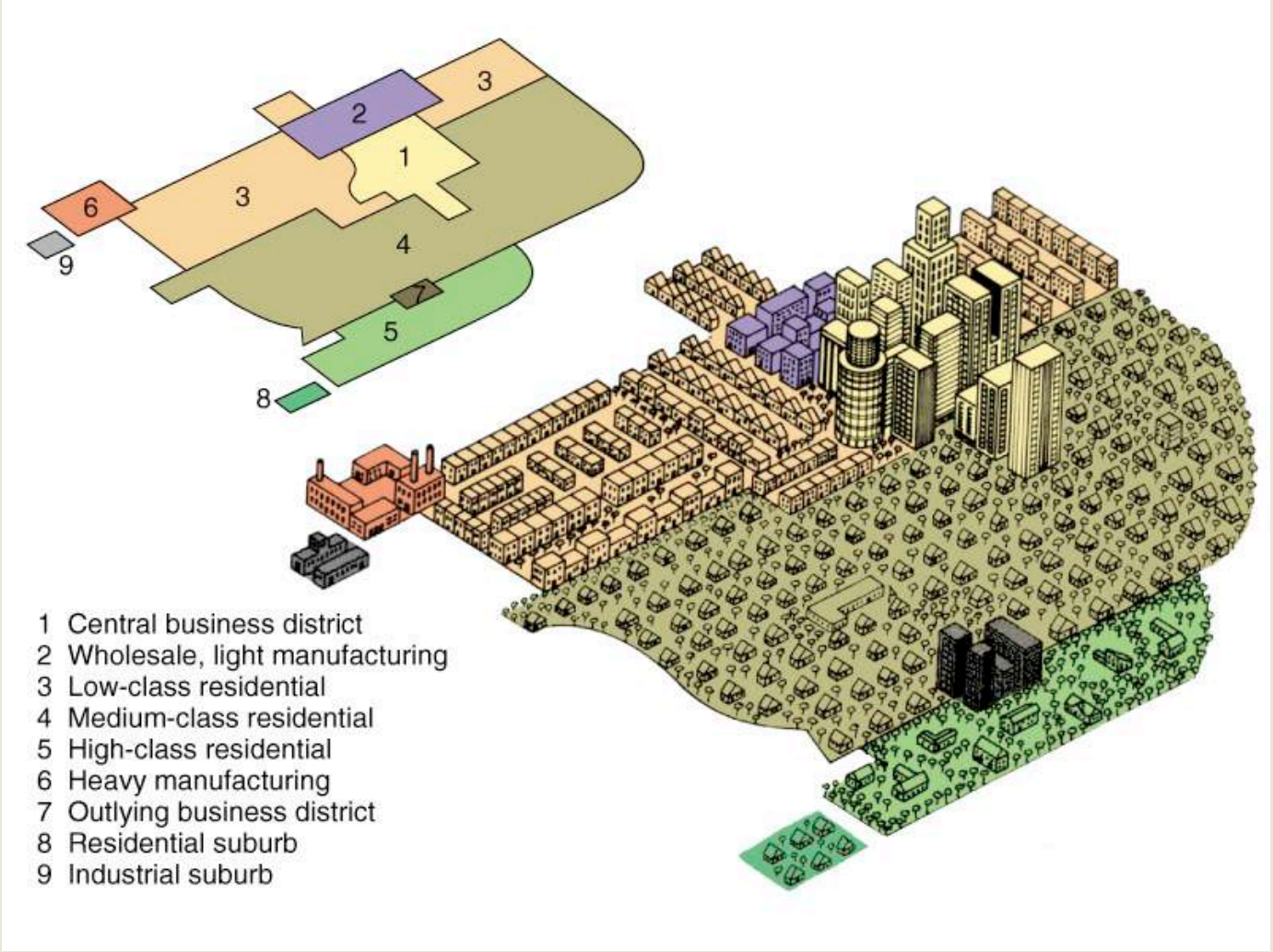
Downtown CBD not only core of busiiness land use

Other nuclei develop - special retail districts, office parks, light manufacturing i city

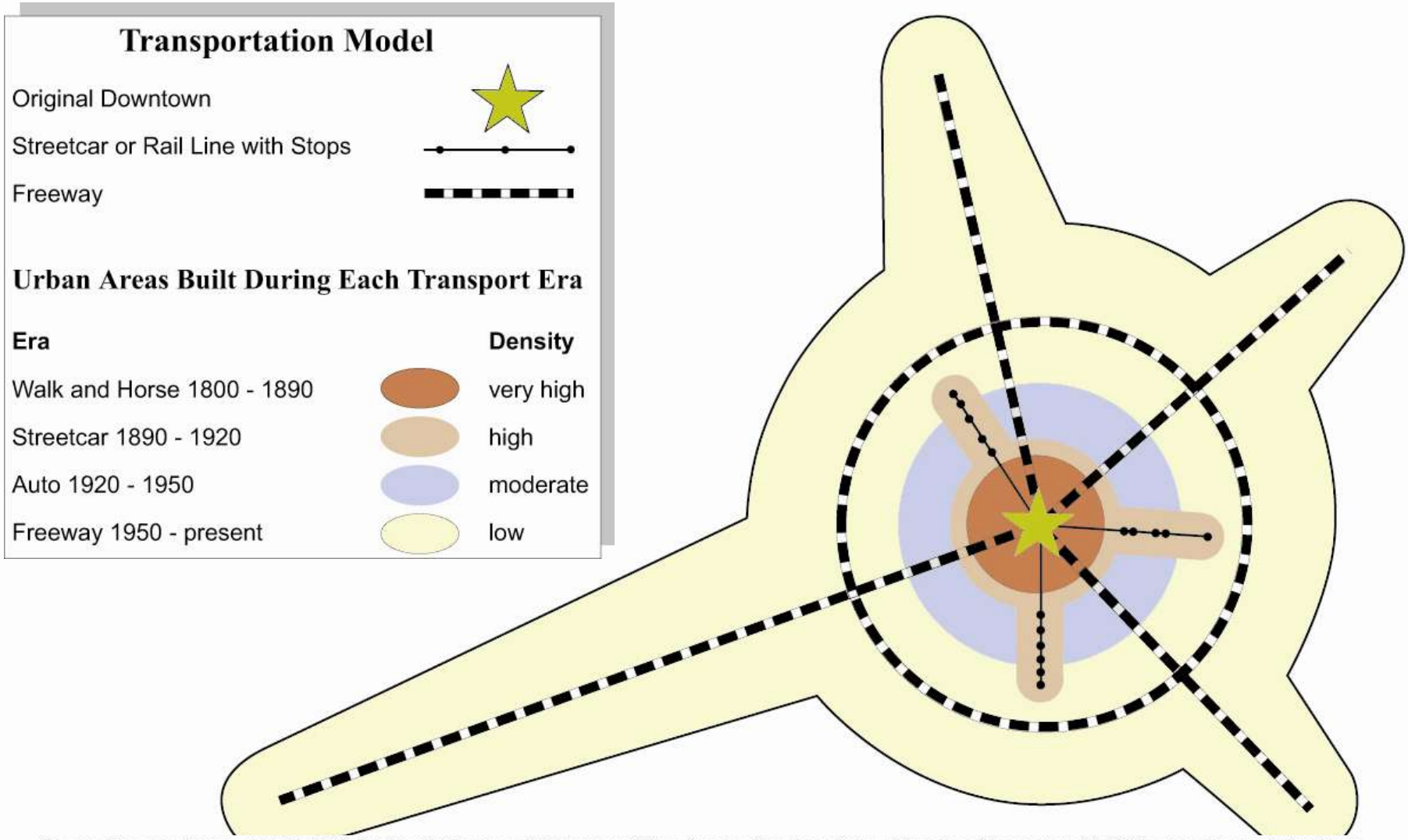
Metro areas develop "suburban downtowns" (called "edge cities")



Multiple Nuclei Model

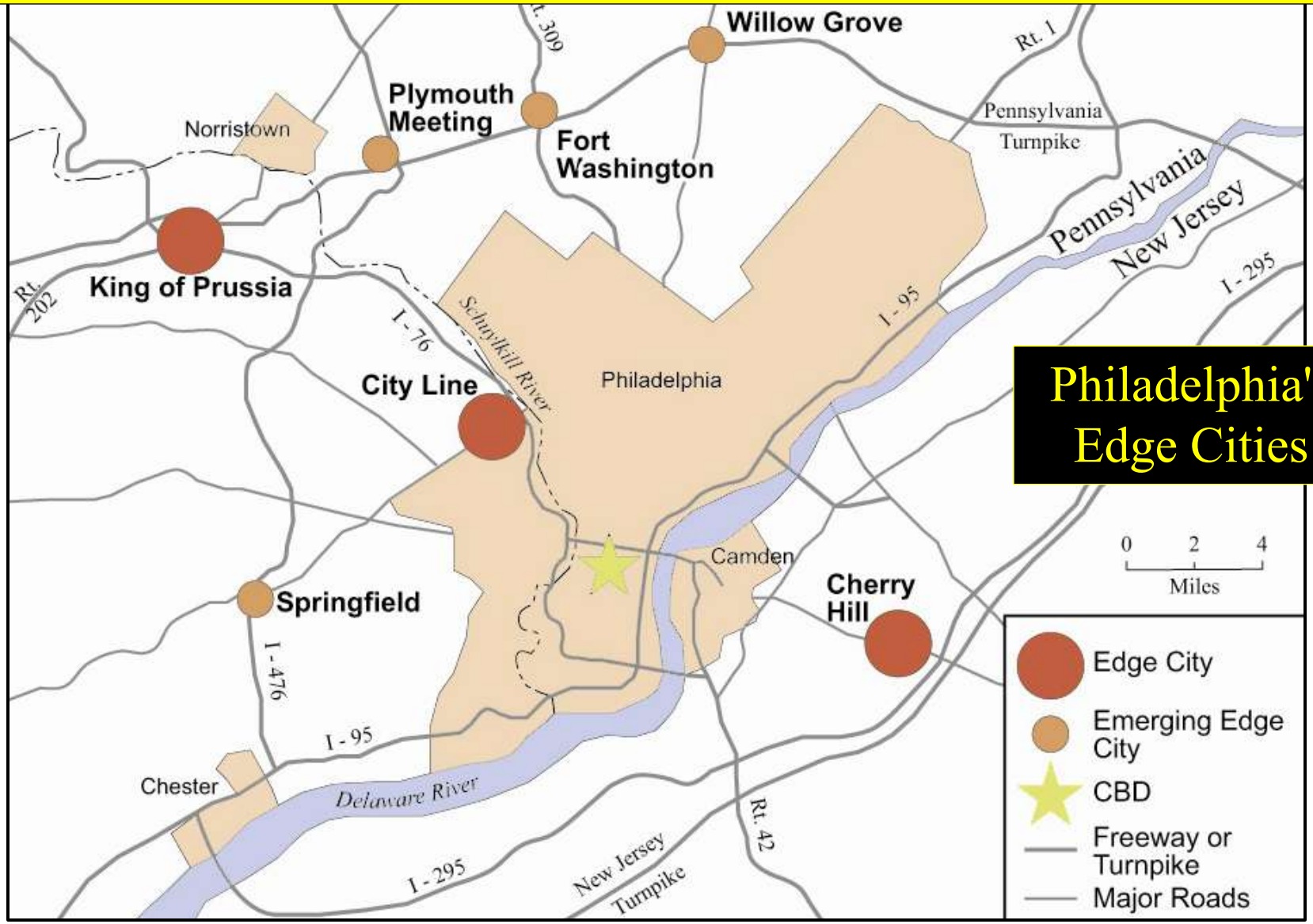


Transportation and urban growth



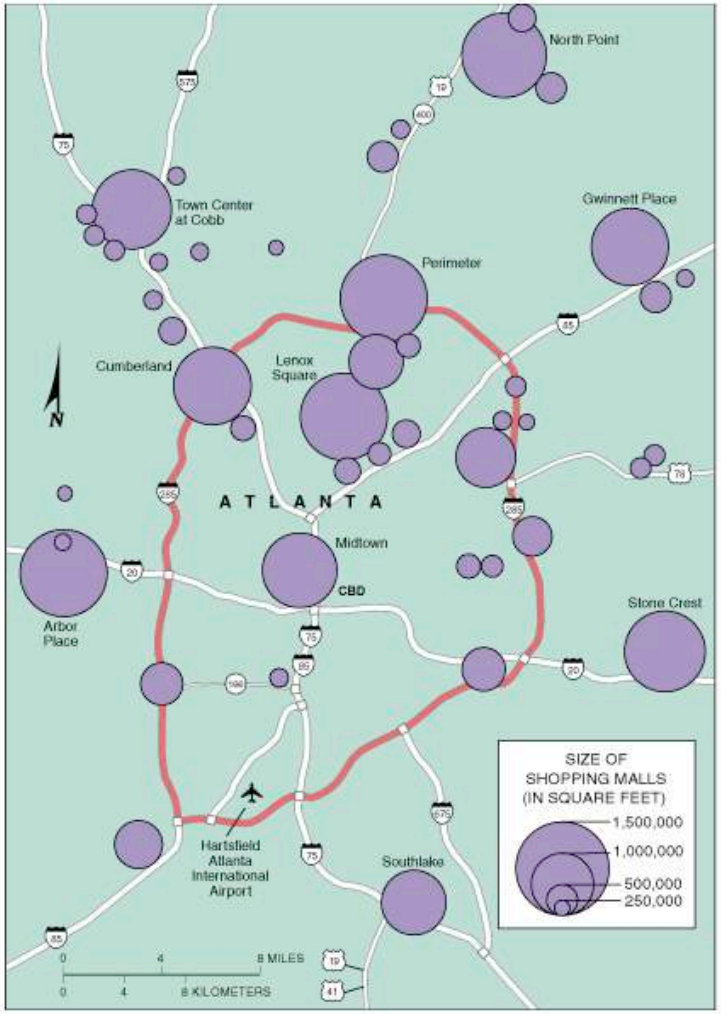
Source: Based on Adams, John S. 1970. Residential Structure of Midwestern Cities. *Annals of the Association of American Geographers* 60:56. Courtesy Blackwell Publishers.

"Edge cities" - suburban nodes: high-rise offices, shopping, entertainment, hotels - designed for auto travel -
Located along freeways or beltways



Philadelphia's Edge Cities

Galactic City or Edge City Model



Urban sprawl – contemporary problem

Low-density “leapfrog” developments beyond urban edge

Lack of coordinated planning between jurisdictions

Consequence of car-dependent urban growth

Contemporary urban trends

Infill development (opposite of sprawl)

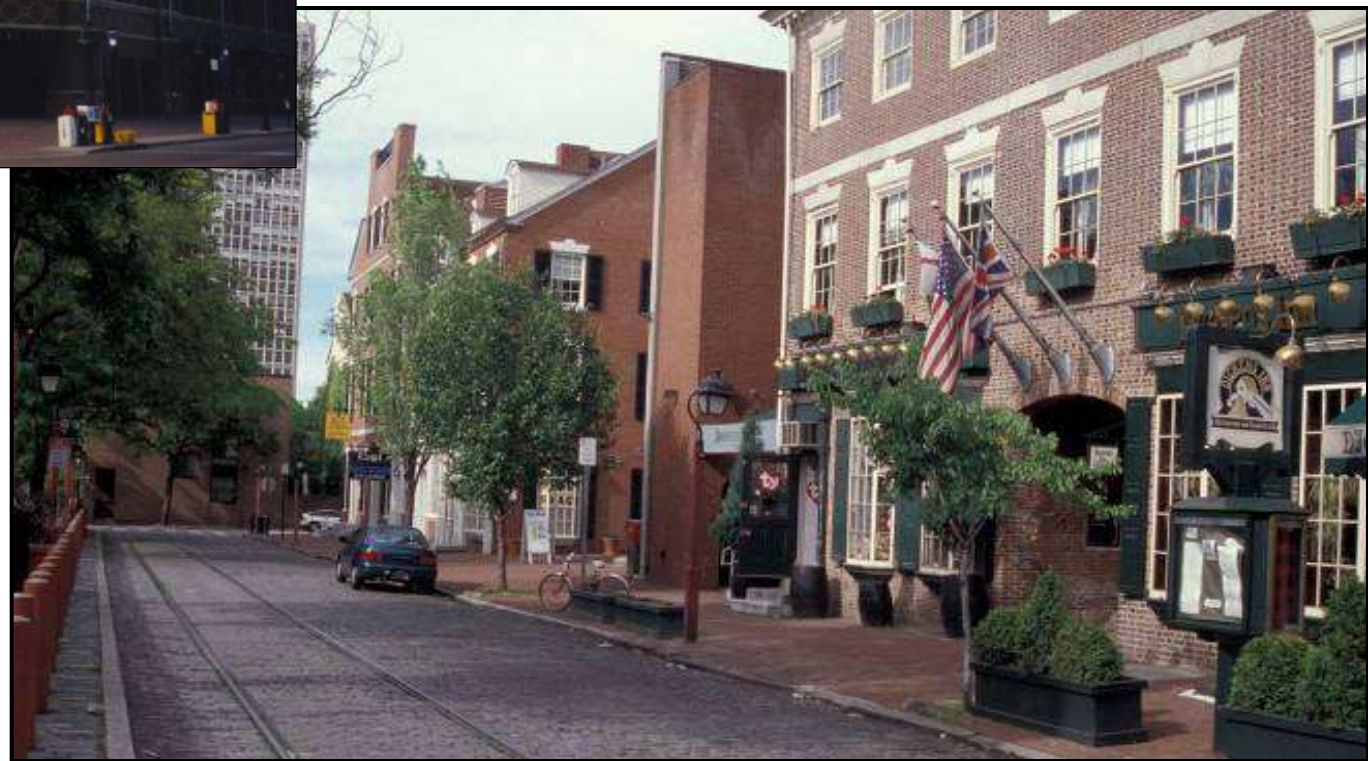
Contemporary urban trends

"New Urbanism"

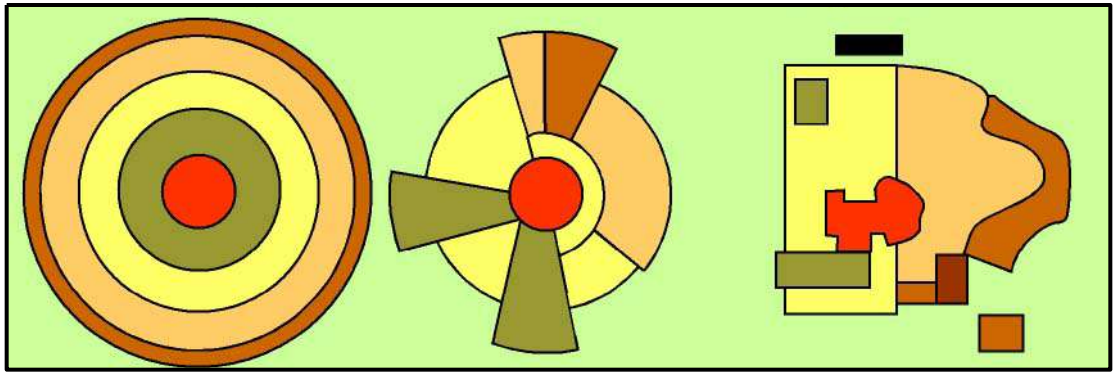
Prospect Town, Longmont

Contemporary urban trends

Gentrification and Downtown Revitalization



Applicability of classic land use models



Rings, sectors, and multiple nuclei are still seen, but overall pattern is complex

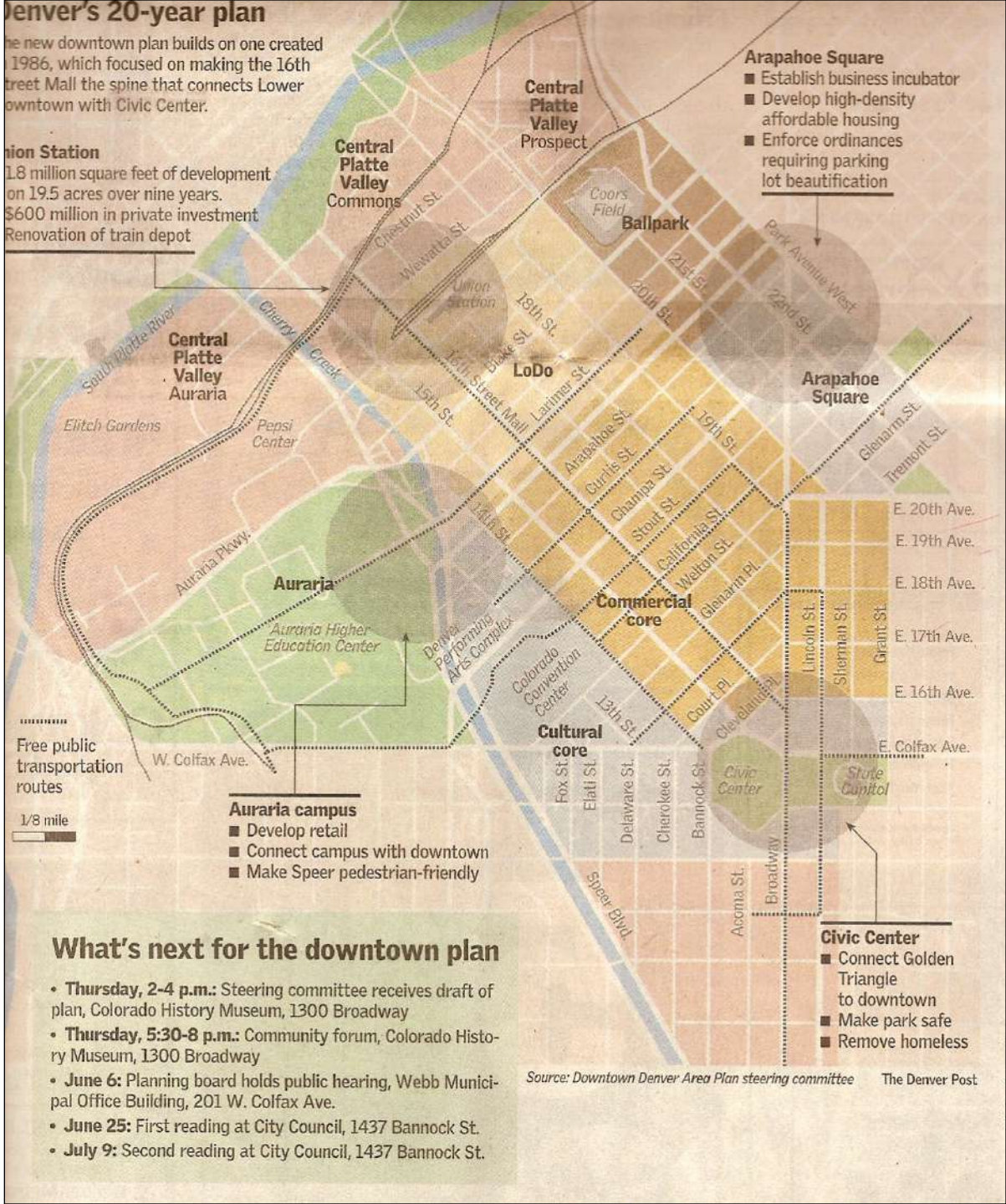
Family status tends to be distributed concentrically

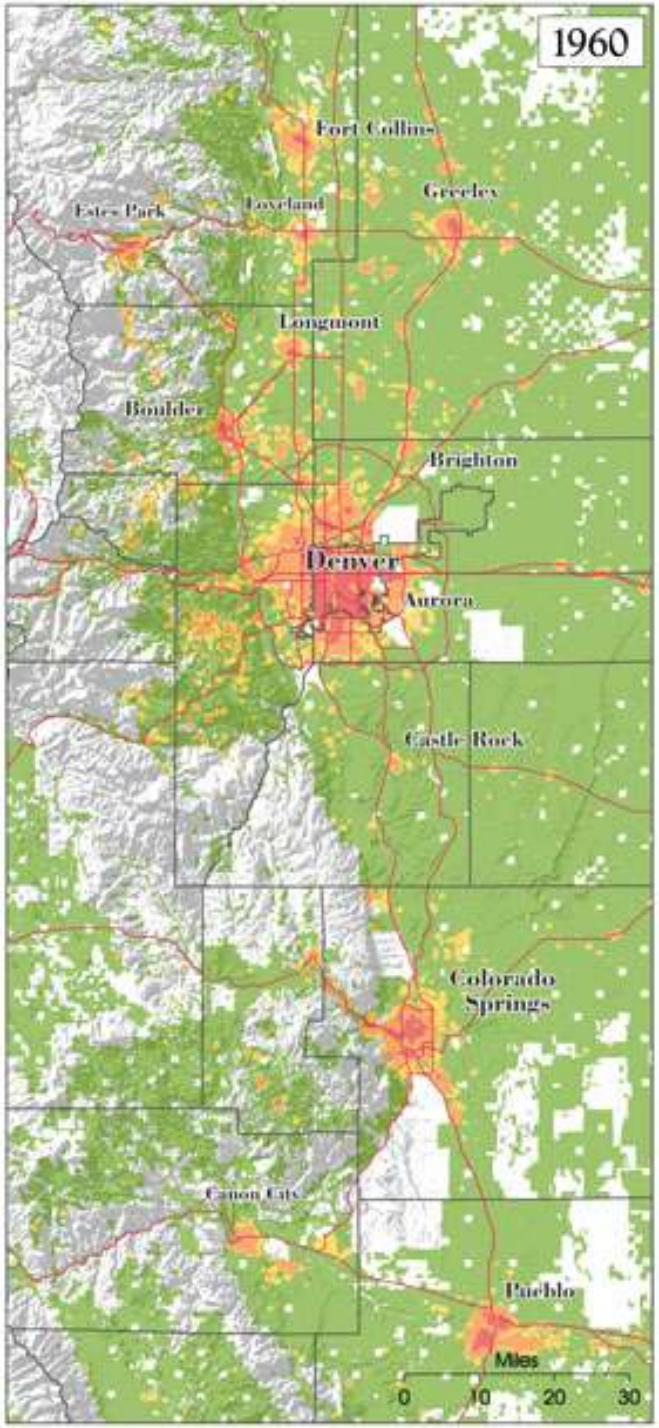
Socioeconomic status tends to be radial

Ethnic status tends to be clustered

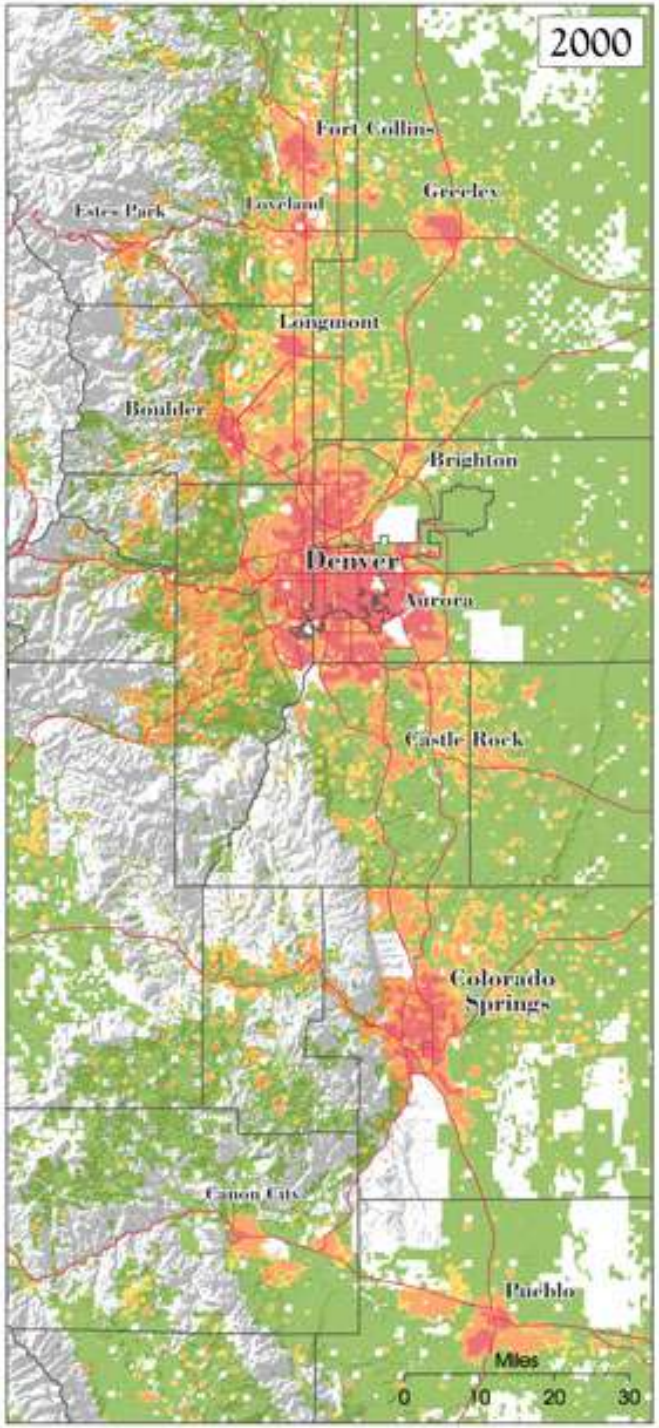
Geography and GIS

Essential tools in urban & regional planning

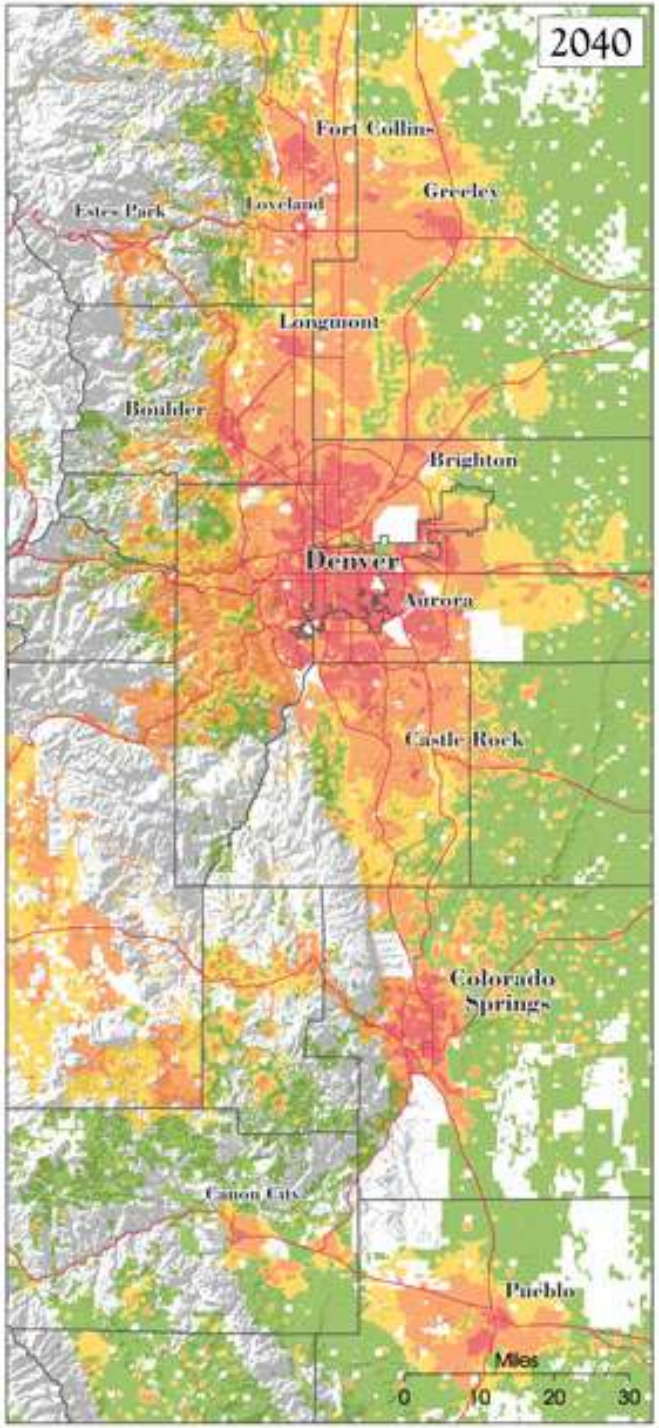




Source: October 2006: http://centerwest.org/futures/frtrng/



Source: October 2006:
http://centerwest.org/futures/frtrng/



Source: October 2006:
http://centerwest.org/futures/frtrng/

Geographic Investigation Process

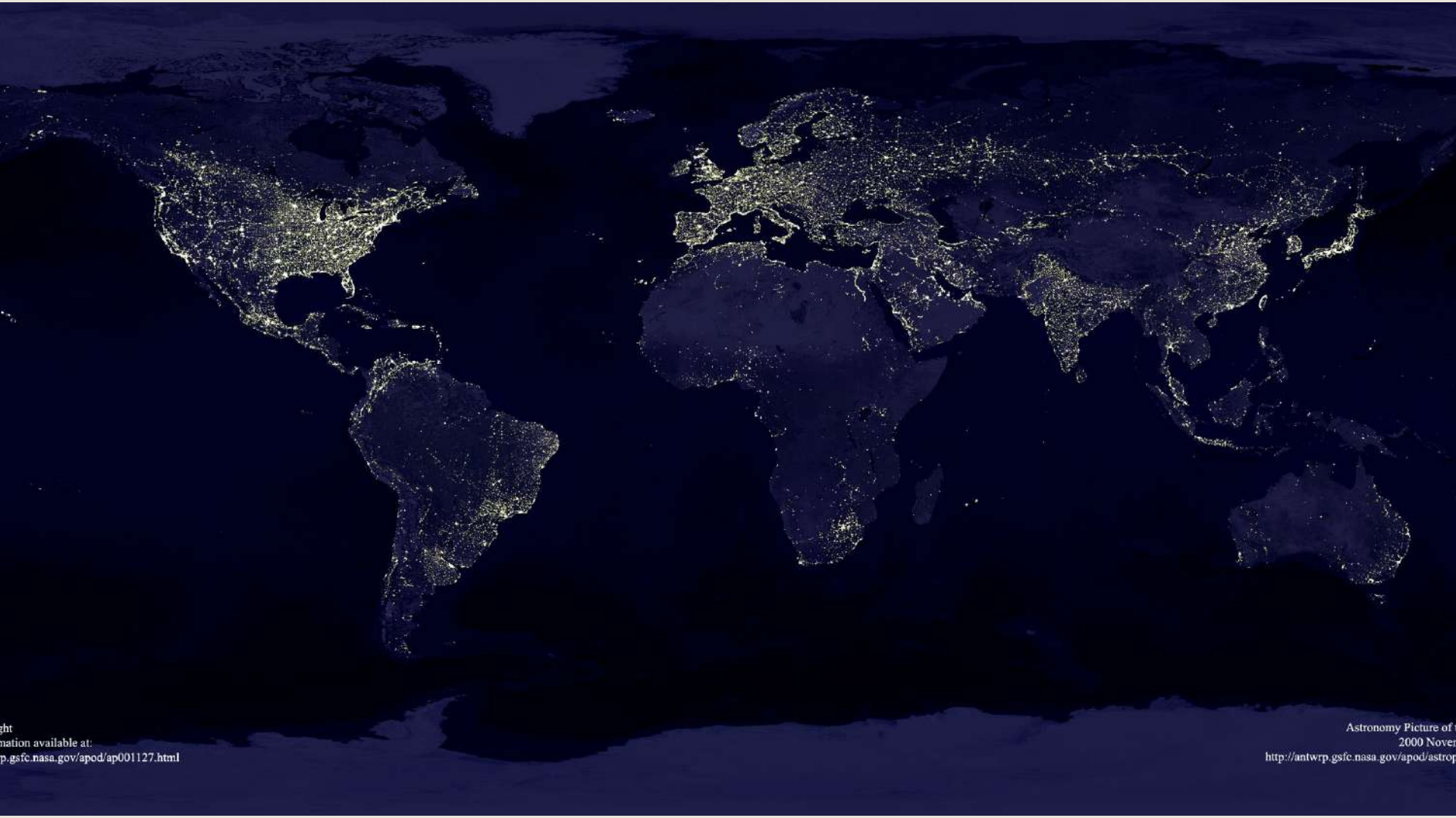
- Level 1 Questions - What? Where? When?
- Level 2 -Pattern Identification
- Level 3
  - Questions- Why? How? Brainstorm
  - Field Investigation
- Level 4 So What? What if?

Key Topics: Regional and Global Scale

- Services and functions cities provide
- Urban Systems and Hierarchy
- Distribution of cities- Globally and Regionally
- Relationships between cities and the surrounding regions.

Tokyo Skyline: corporate skyscrapers of Shinjuku reach for the sky

Earth at Night



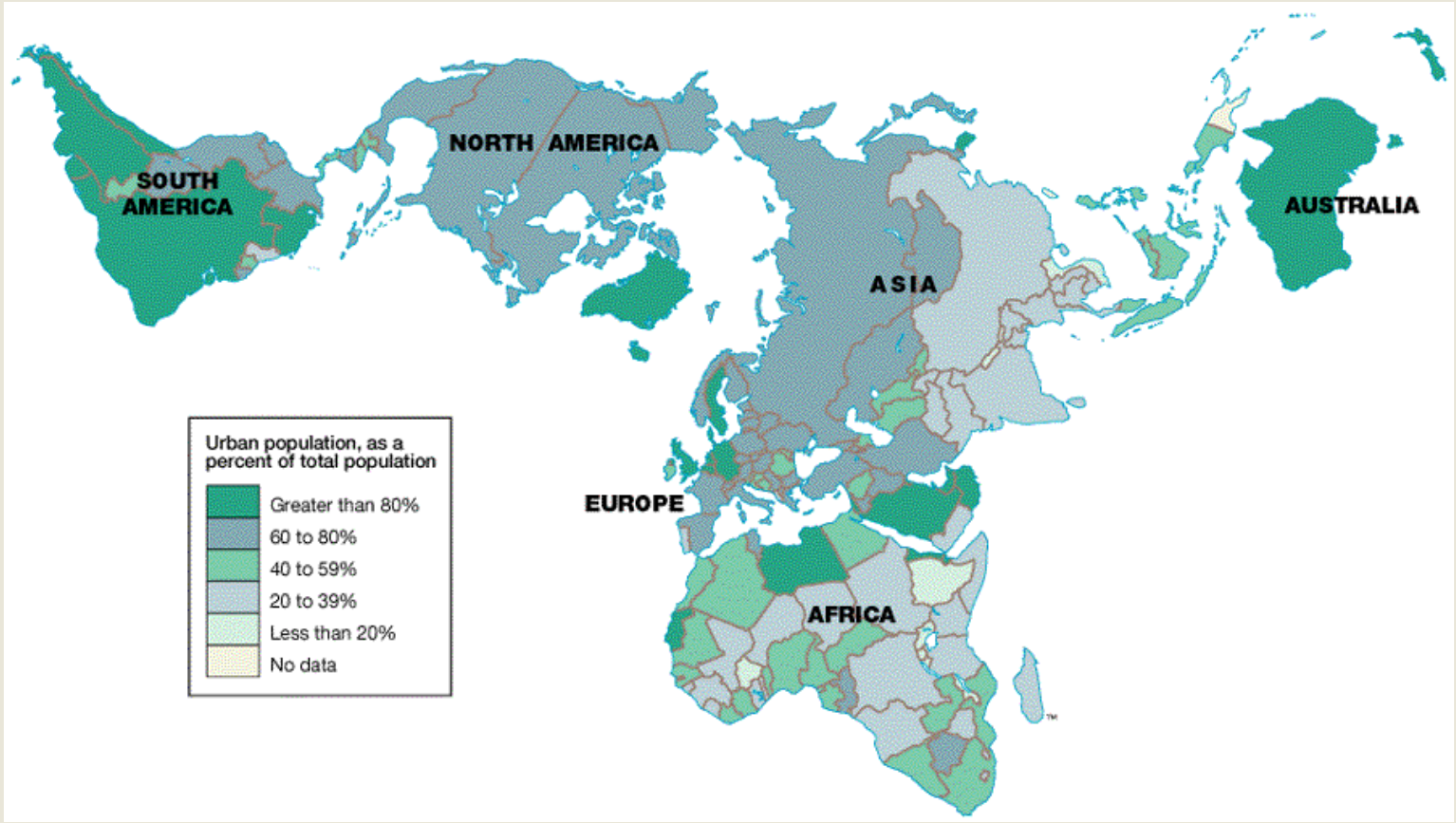
Key Topics: Regional and Global Scale

- Rural to Urban Migration
- Core (HDC) compared to Periphery (LDC) urbanization
- Globalization, po megacities

Sao Paulo Brazil- http://www.csuhayward.edu/alumni_friends/public_affairs/international/brazil/skyline.jpg

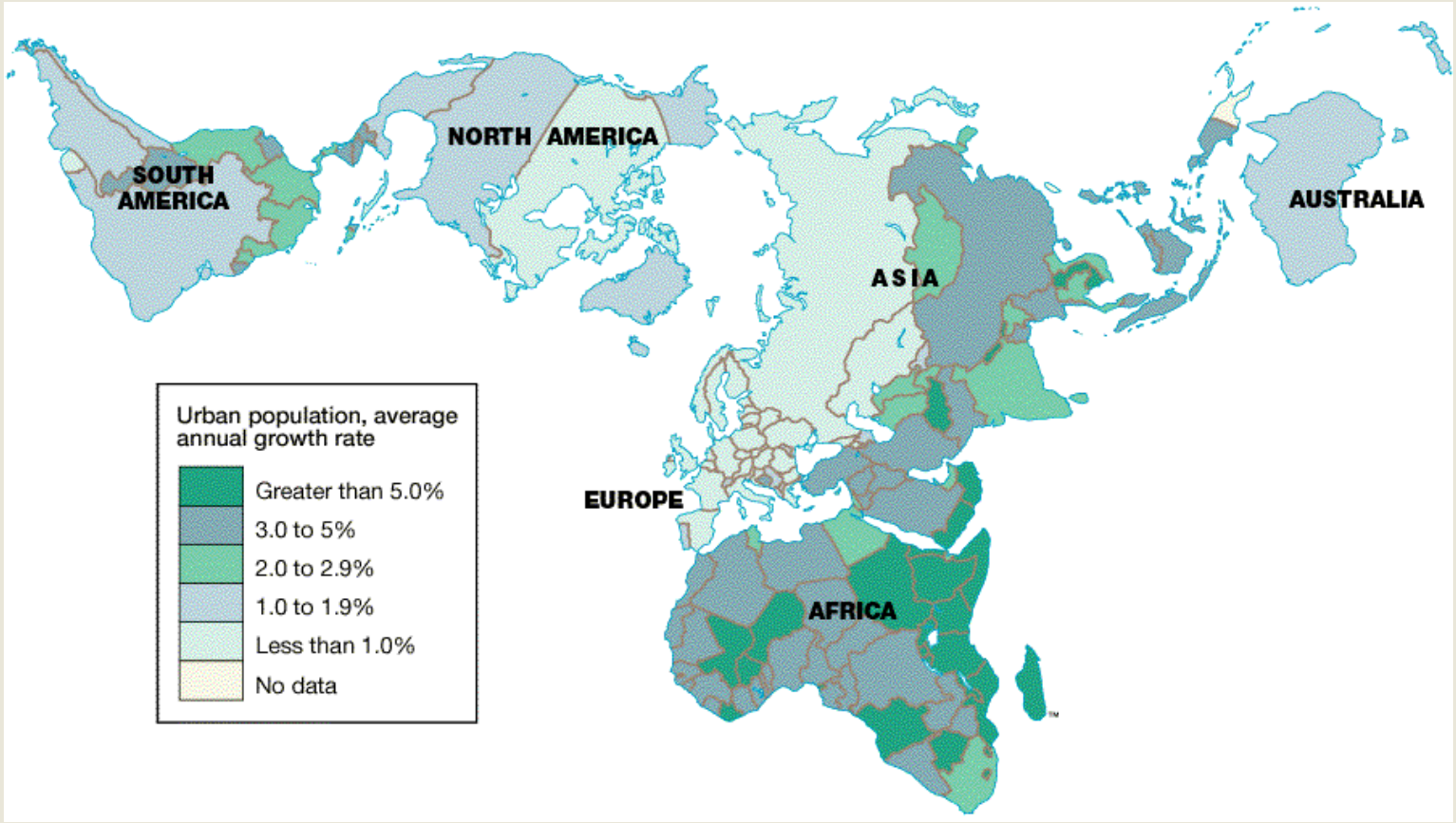
<- Lagos Nigeria - http://www.payer.de/kommkulturen/kultur11111.gif

Percent Urban



Knox and Marston - http://wps.prenhall.com/wps/media/objects/814/834298/Urbanpop_percent_tot.GIF

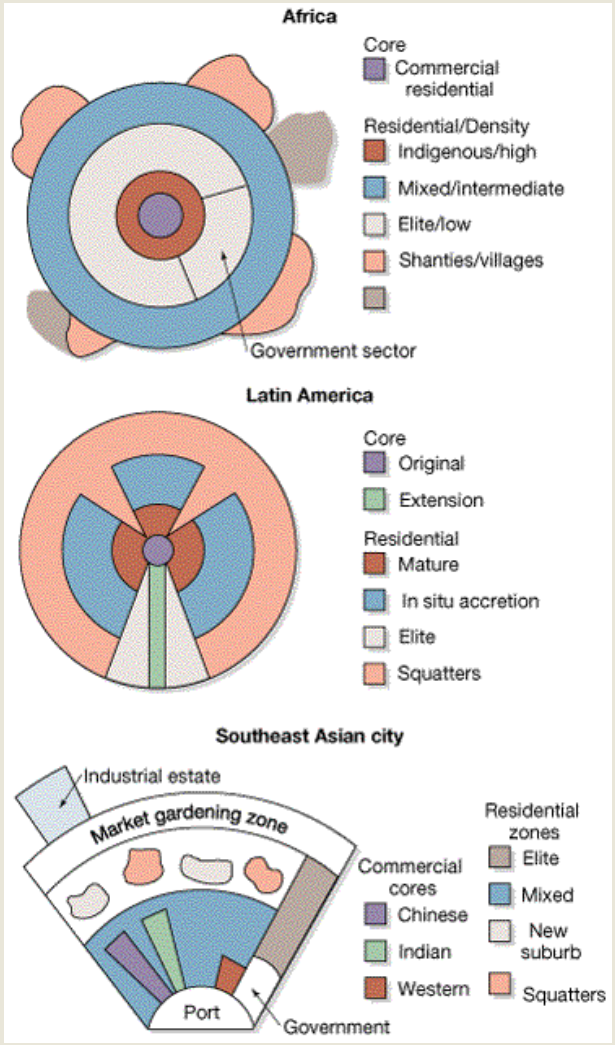
Urban Growth Rate- Patterns



Knox and Marston - http://wps.prenhall.com/wps/media/objects/814/834298/urbanpop_average_annual.GIF

Key Concepts - Local Scale

- Internal Structures of Cities and Cultural Landscape
- Areas of spatial pattern focus
  - Land use
  - Ethnic segregation
  - Transportation
  - Uneven development
  - Environmental impacts
  - Living conditions
  - Architecture
- Use a variety of regions as case studies



Urban Landscapes

Hong Kong

Shang Hai China

Orange County, CA

Rio De Janeiro- Brazil

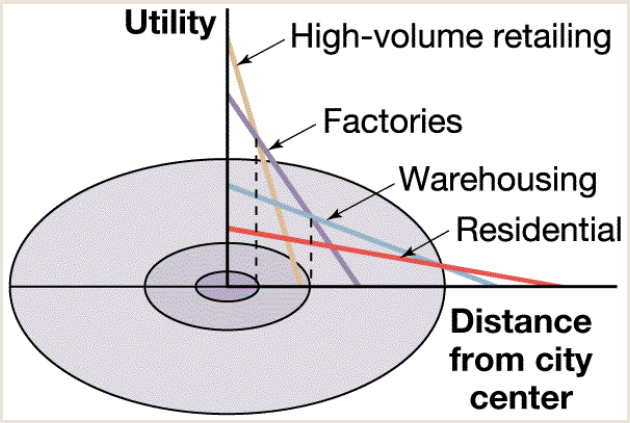
Jakarta Indonesia

London

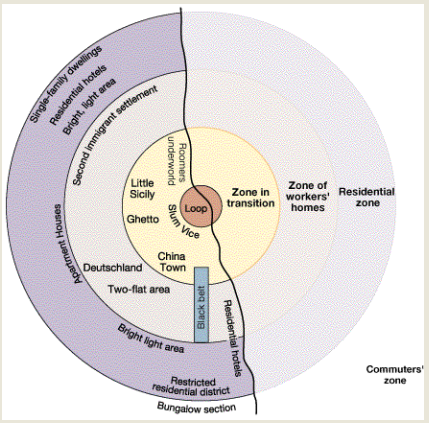
http://www.payer.de/kommkulturen/kultur112.htm

Sample US Models

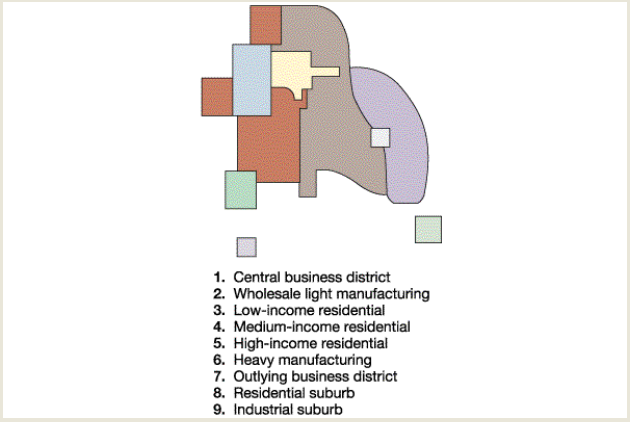
Bid - Rent



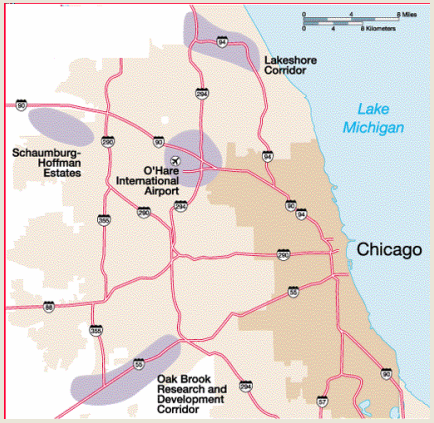
Concentric Zone



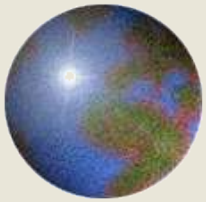
Multiple Nuclei



Edge Cities



Systems of Urban Settlements

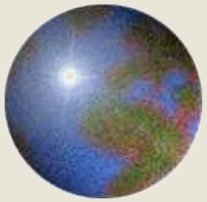


Three Classes:

- Special-function cities
- Transportation Centers
- Central Places

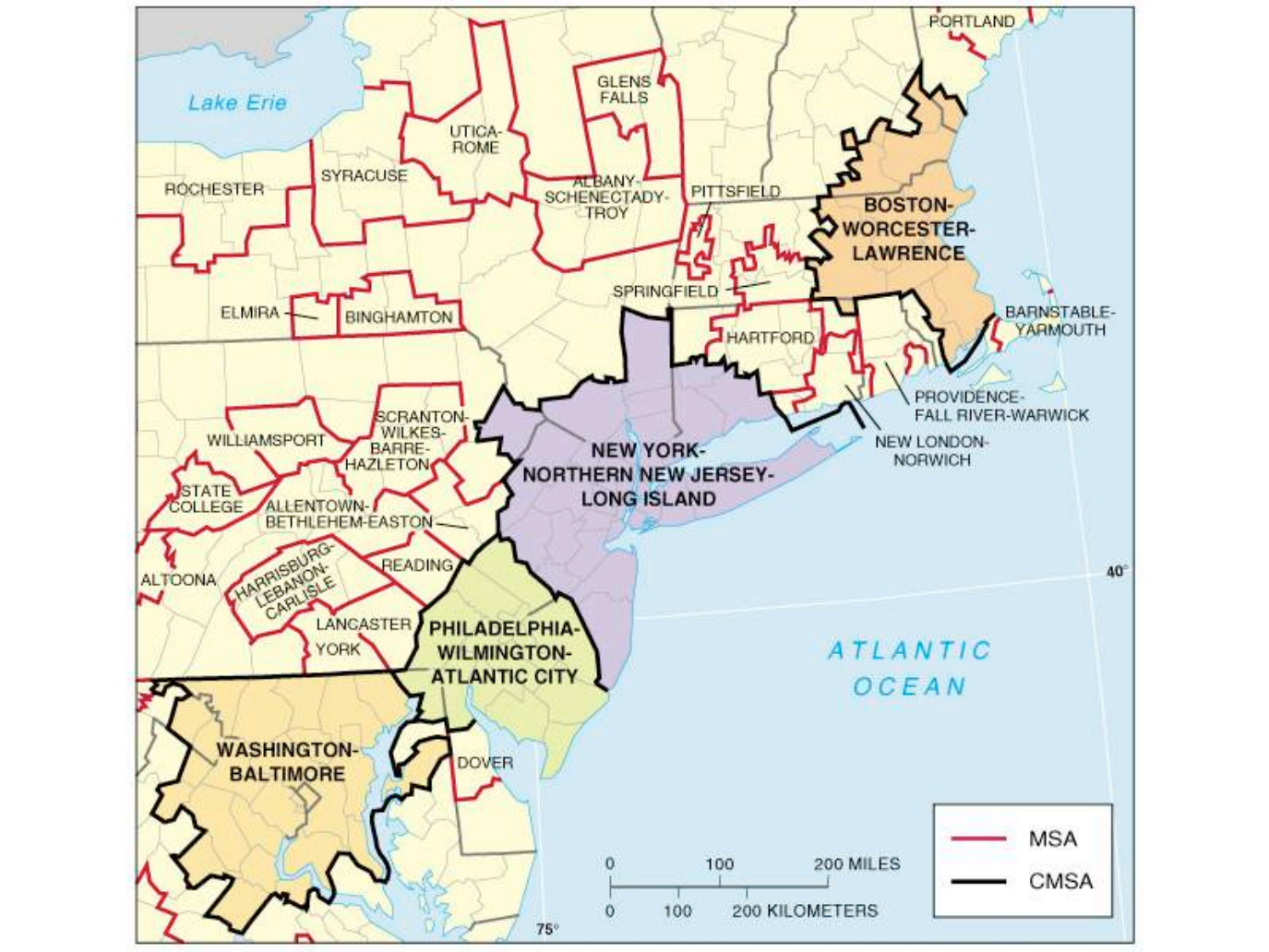
Help us to explain distribution patterns, size and functional hierarchies of the city system

See- Cities in our Lives Cornell Notes



Urban Land Use Models

Metropolitan Statistical Areas



NOT USED SUMMER 2008

Add in here GIS example – coffee house to show how location of individual businesses can utilize GIS