

URBAN PLANNING AND ENVIRONMENT



ASHGATE

The Social Impacts of Urban Containment

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and Thomas W. Sanchez

Megapolitan America

Defining and Applying a New Geography

**Megacities, Megaregions
and Spatial Planning**

Georgia Tech – Atlanta, Georgia

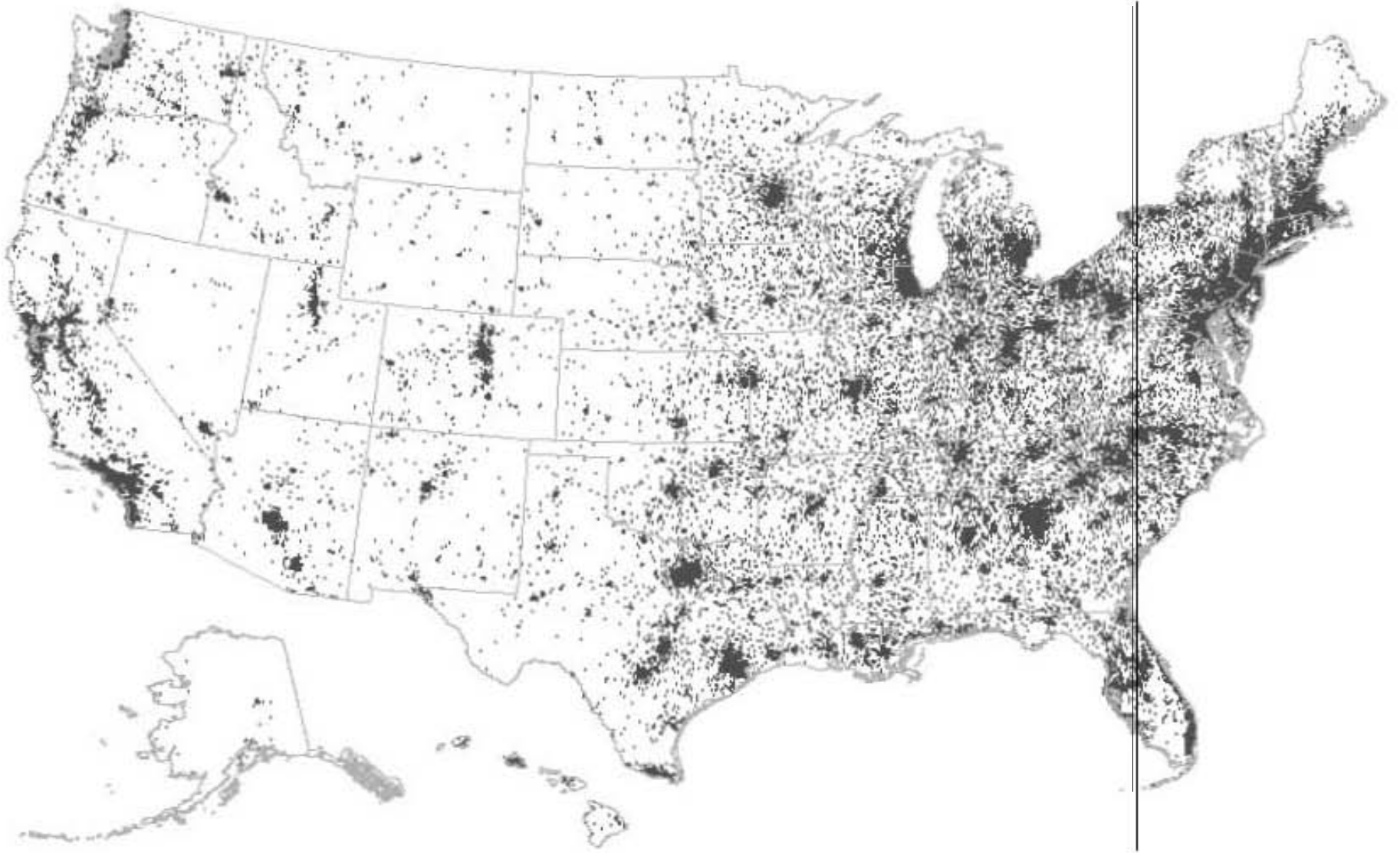
June 28, 2007

Arthur C. Nelson, Ph.D., FAICP

Robert Lang, Ph.D.

Metropolitan Institute at Virginia Tech

US Population Settlement 2043



Source: USA Today, “Where will everybody live?”, Cover story concept by Arthur C. Nelson, October 27-29, 2006

Jeann Gottmann's Legacy

Megalopolis 1961

Presented new way of thinking on metropolitan conurbations.

Largely ignored conceptually for 40+ years.

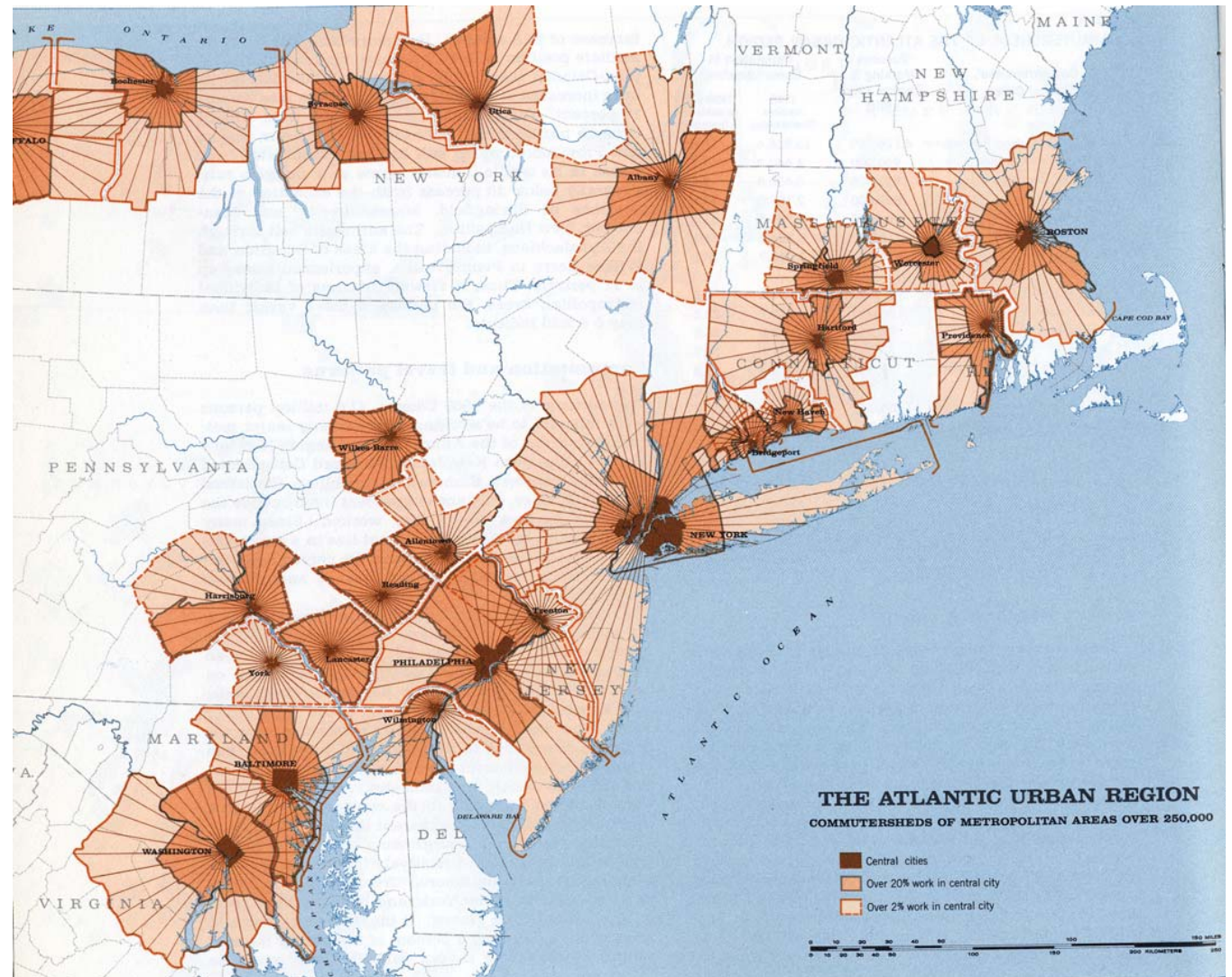
Concept rekindled by Bob Yaro and Armando Carbonell.

Leadership by Penn with academics across US.

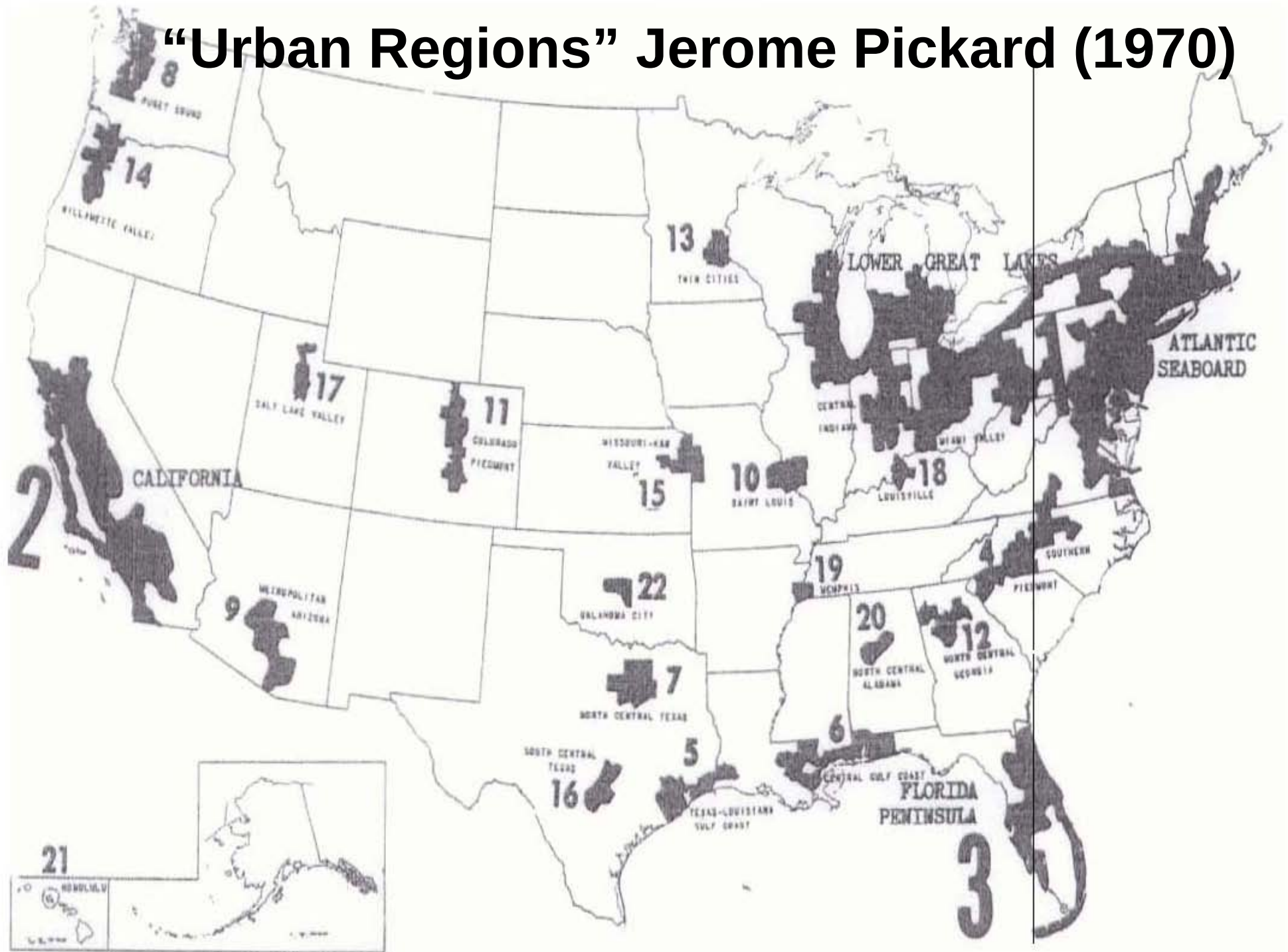
New academic vigor, and rigor.



1960s' RPA Northeast Corridor



"Urban Regions" Jerome Pickard (1970)

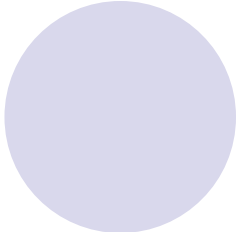


Pickard's 1970 Urban Region Criteria

- At least 1 Million People Live in an Urban Region
- Urban Region's Maintained Three Times the Population Density of the 1970 US Average Density
- The Units are Minor Civil Divisions, Which Allows for Sub-County Analysis

Population of Future Urban Regions of the United States

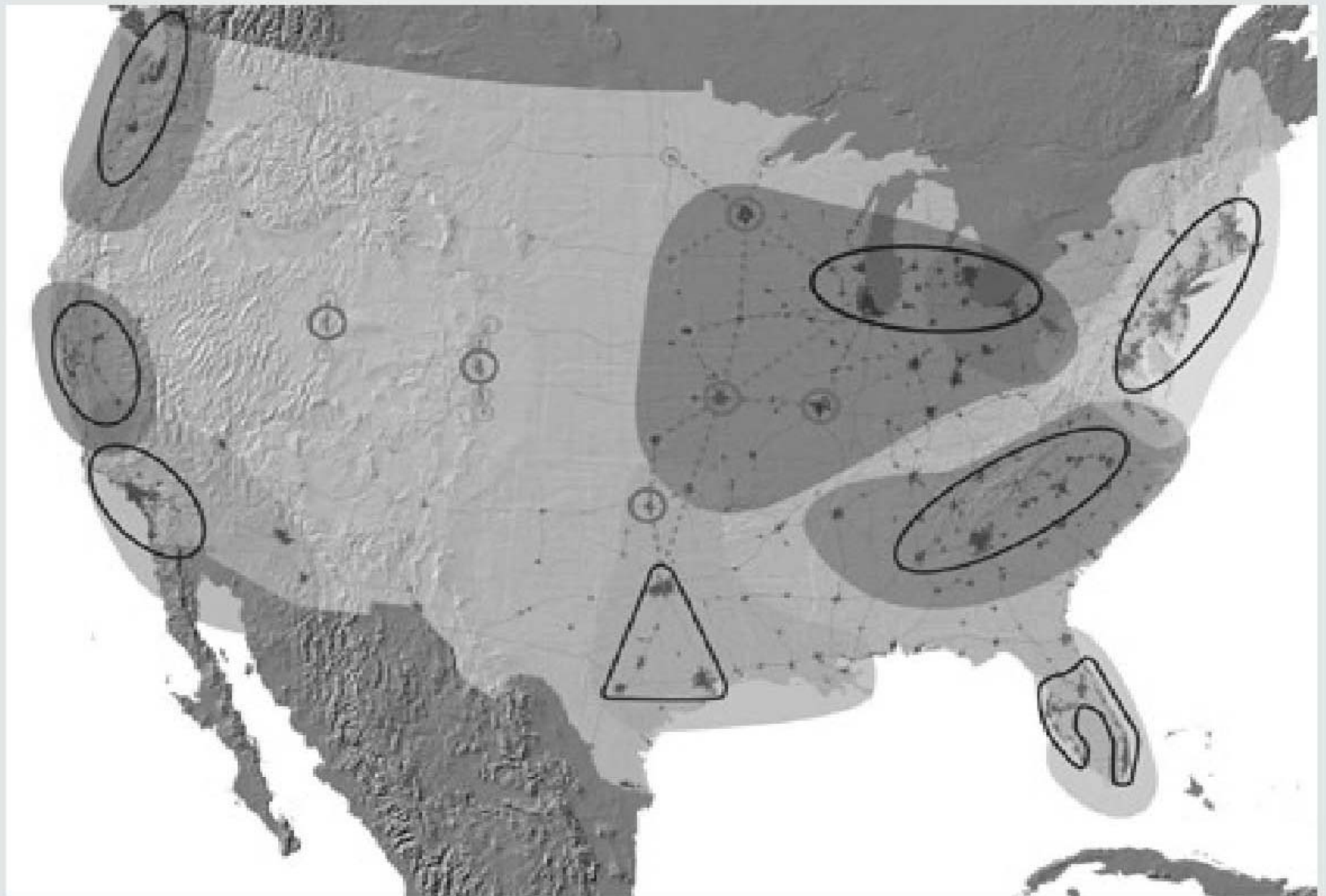
Urban Region	Population in Millions	
	1970 (estimated)	2000 (projected)
1. Metropolitan Belt	86.2	126.5
Atlantic Seaboard	45.8	67.4
Lower Great Lakes	40.4	59.1
2. California	19.9	42.5
3. Peninsular Florida	5.7	13.0
4. Southern Piedmont	3.3	5.2
5. Texas-Louisiana Gulf Coast	2.5	4.9
6. Central Gulf Coast	2.7	4.7
7. North Central Texas	2.2	4.2
8. Puget Sound	2.1	3.8
9. Metropolitan Arizona	1.3	3.5
10. Saint Louis	2.4	3.5
11. Colorado Piedmont	1.6	3.2
12. North Central Georgia	1.8	3.1
13. Twin Cities	1.8	2.5
14. Willamette Valley	1.4	2.4
15. Missouri-Kaw Valley	1.5	2.3
16. South Central Texas	1.2	2.2
17. Salt Lake Valley	0.8	1.6
18. Louisville	0.9	1.5
19. Memphis	0.8	1.4
20. North Central Alabama	0.8	1.3
21. Honolulu (Oahu)	0.7	1.2
22. Oklahoma City	0.6	1.2
Total (U.S.)	142.2	235.7
% of total U.S. population in urban regions	69.3%	76.8%

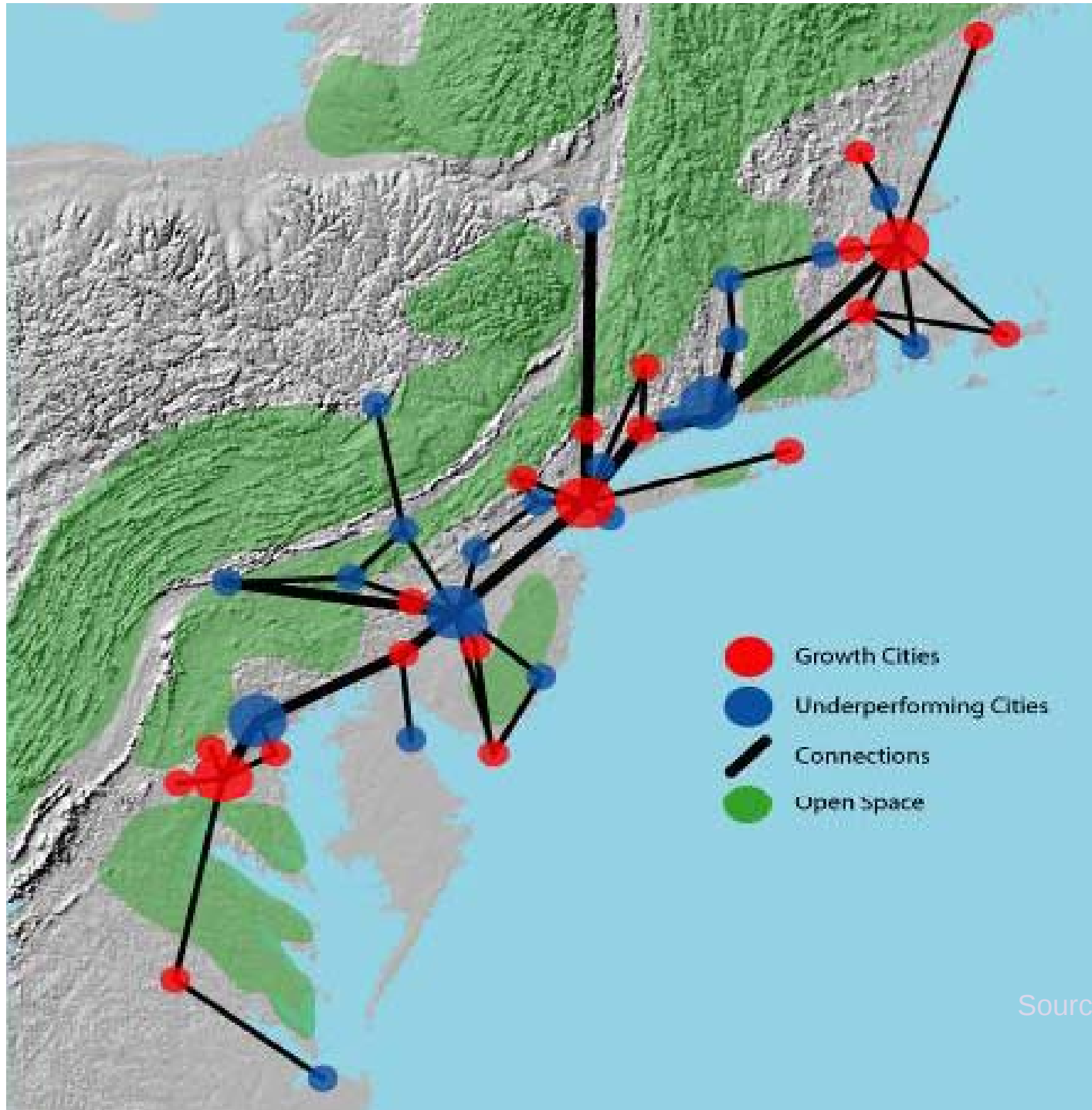


**Pickard's
2000
Population
Estimates**

FIGURE 2

Emerging Megalopolitan Areas in the United States

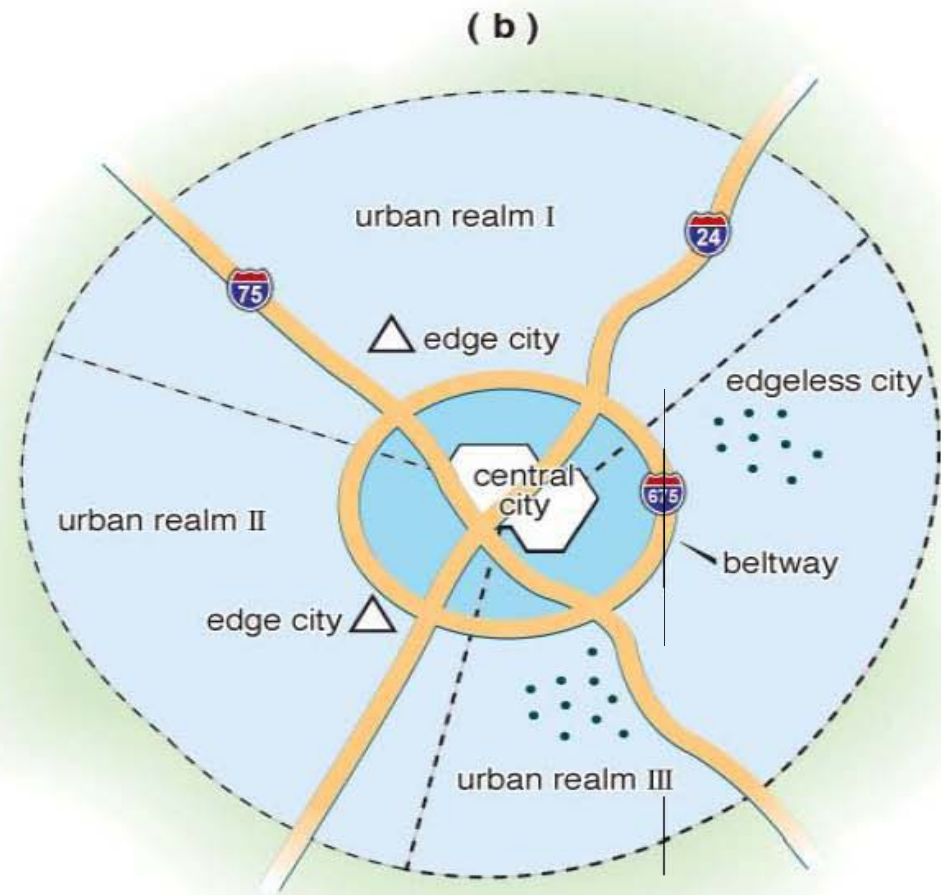
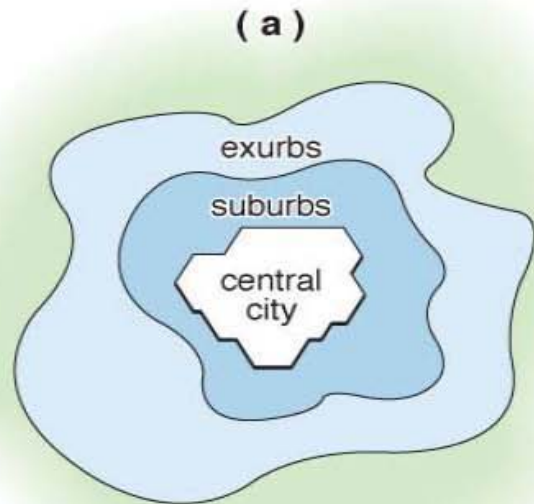




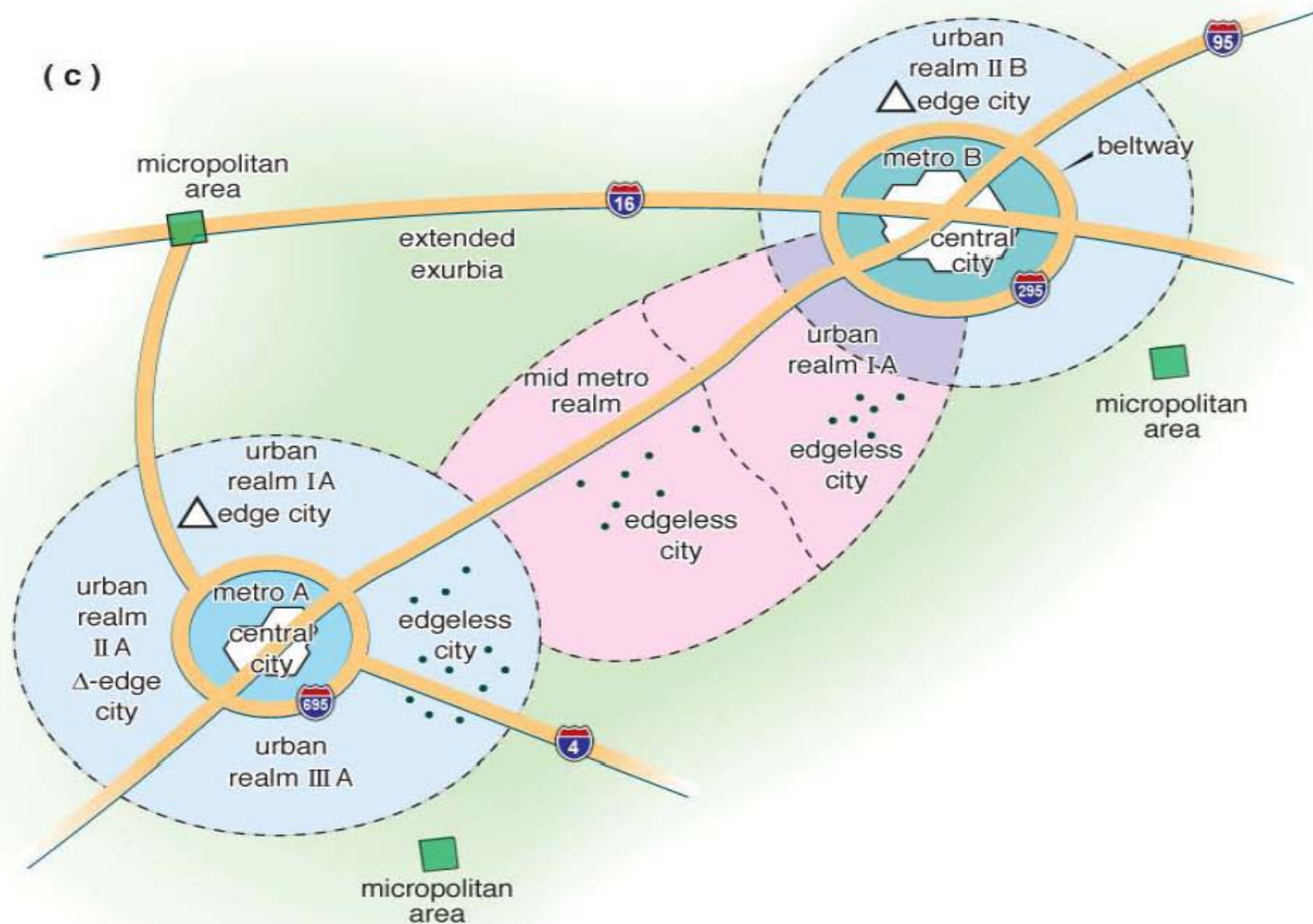
Hot and Cold Links Between Cities

Source: University of Pennsylvania

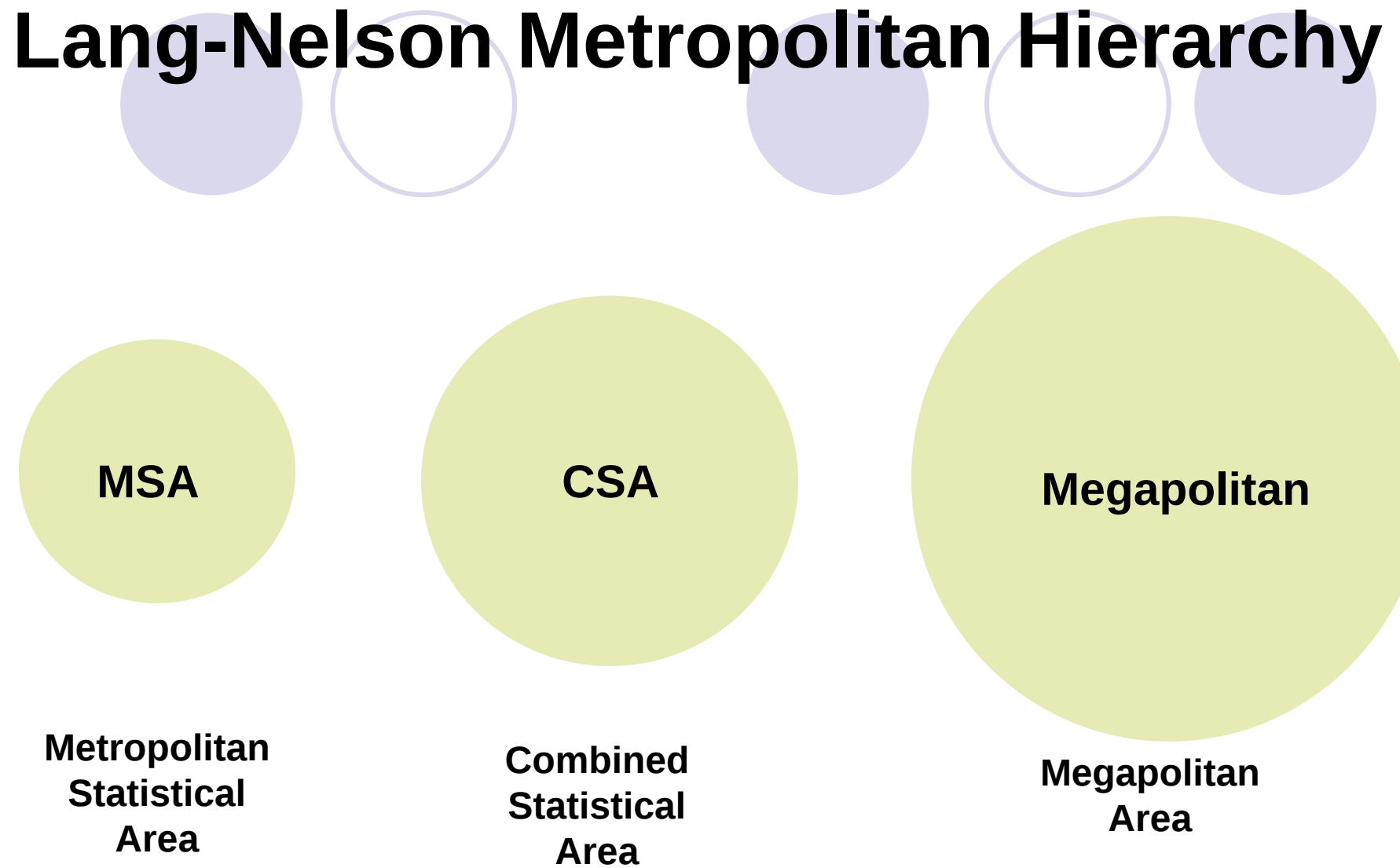
20th Century Metropolitan Form



21st Century Megapolitan Form



Lang-Nelson Metropolitan Hierarchy



The diagram illustrates the Lang-Nelson Metropolitan Hierarchy. At the top, the title 'Lang-Nelson Metropolitan Hierarchy' is displayed in a large, bold, black font. Below the title, there are three light purple circles arranged horizontally. The middle circle is an outline, while the two flanking circles are solid. Below these circles, there are three light green circles of increasing size from left to right. Each green circle contains a bold black label: 'MSA', 'CSA', and 'Megapolitan'. Below each green circle is its full name in a smaller, bold, black font: 'Metropolitan Statistical Area', 'Combined Statistical Area', and 'Megapolitan Area'.

MSA

**Metropolitan
Statistical
Area**

CSA

**Combined
Statistical
Area**

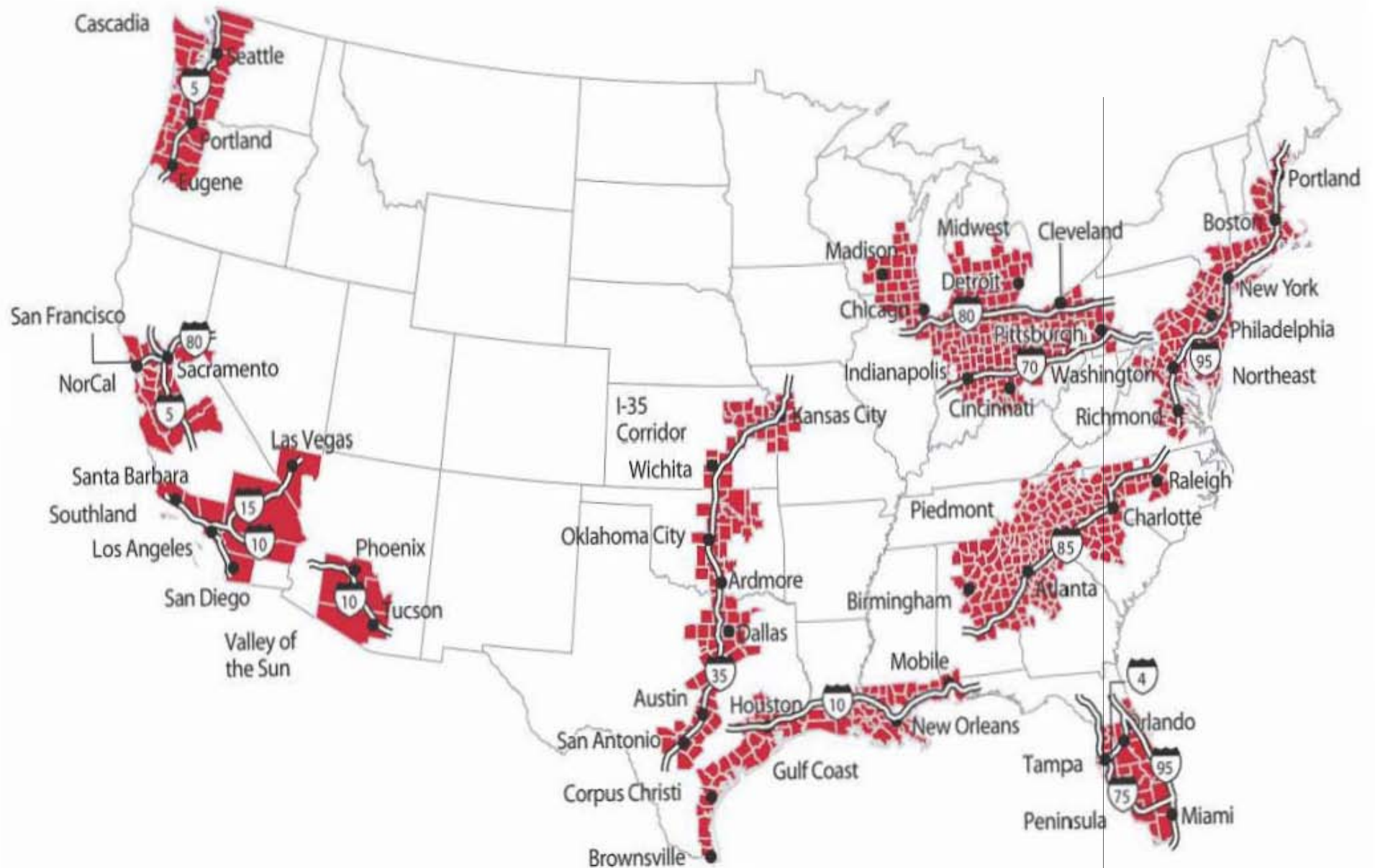
Megapolitan

**Megapolitan
Area**

Lang-Nelson Megapolitan Models

- Original 2005 Megapolitan Model Identifies Contiguous Metro and Micropolitan Areas that are Linked By Business Connectivity, Transportation, and Environment.
- New 2006 Model Works on a Modified Version on Census Methods that Track Commuting. It is Very Close to the Census's Combined Statistical Area Criteria. The Model Supplements the 2005 Geography.

Lang-Nelson Original 2005 Megapolitans



takes (to drive) to Nanta Airport from Tokyo," Study says. "He said two hours. I told him we do have direct air service. It's DFW (Dallas/Fort Worth International Airport), and it's only 90 minutes away. We're a big fan of Dallas."

Megapolitans in The News

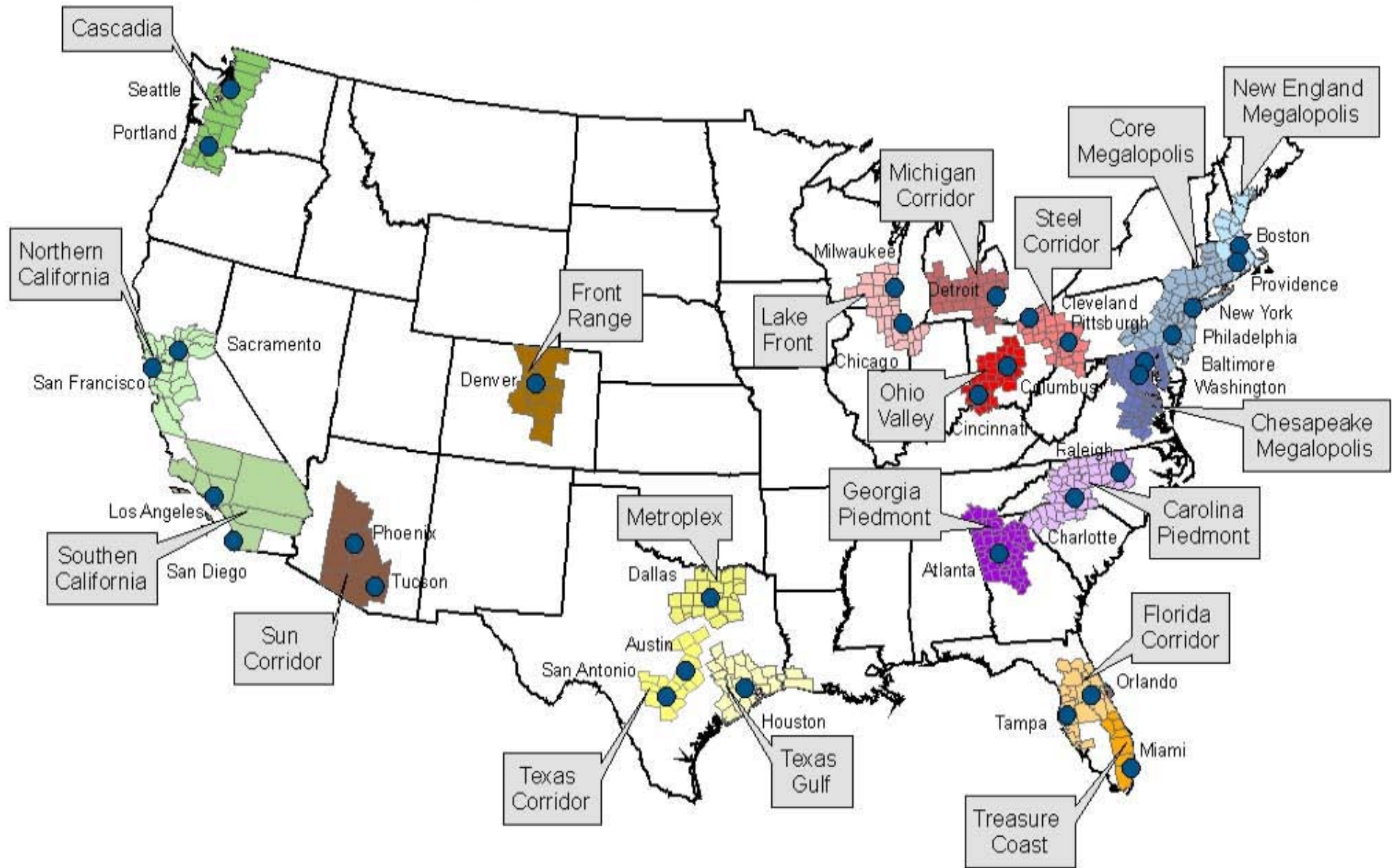
Business 2.0
November '05



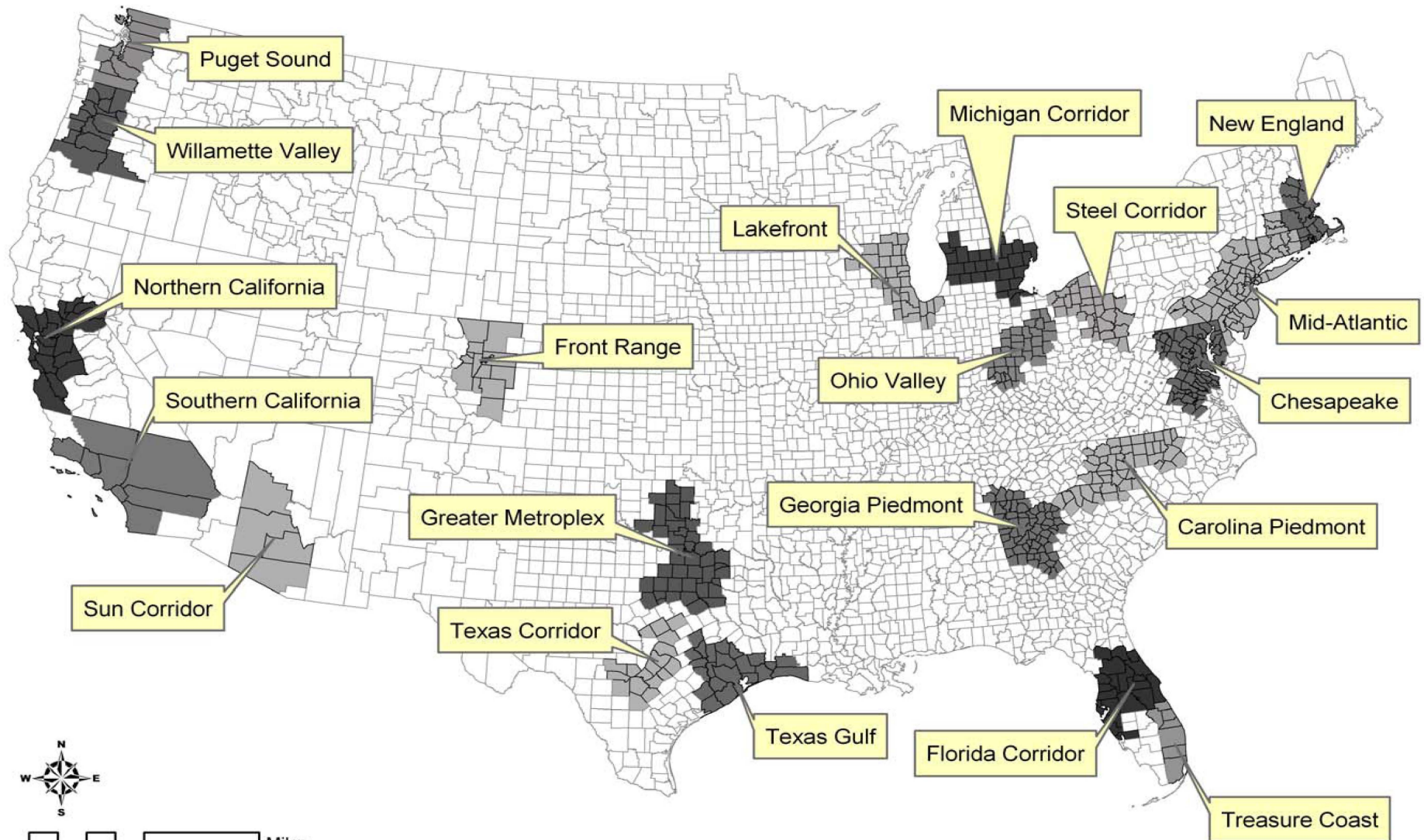
Business 2.0 November '05
Megapolitan Centerfold



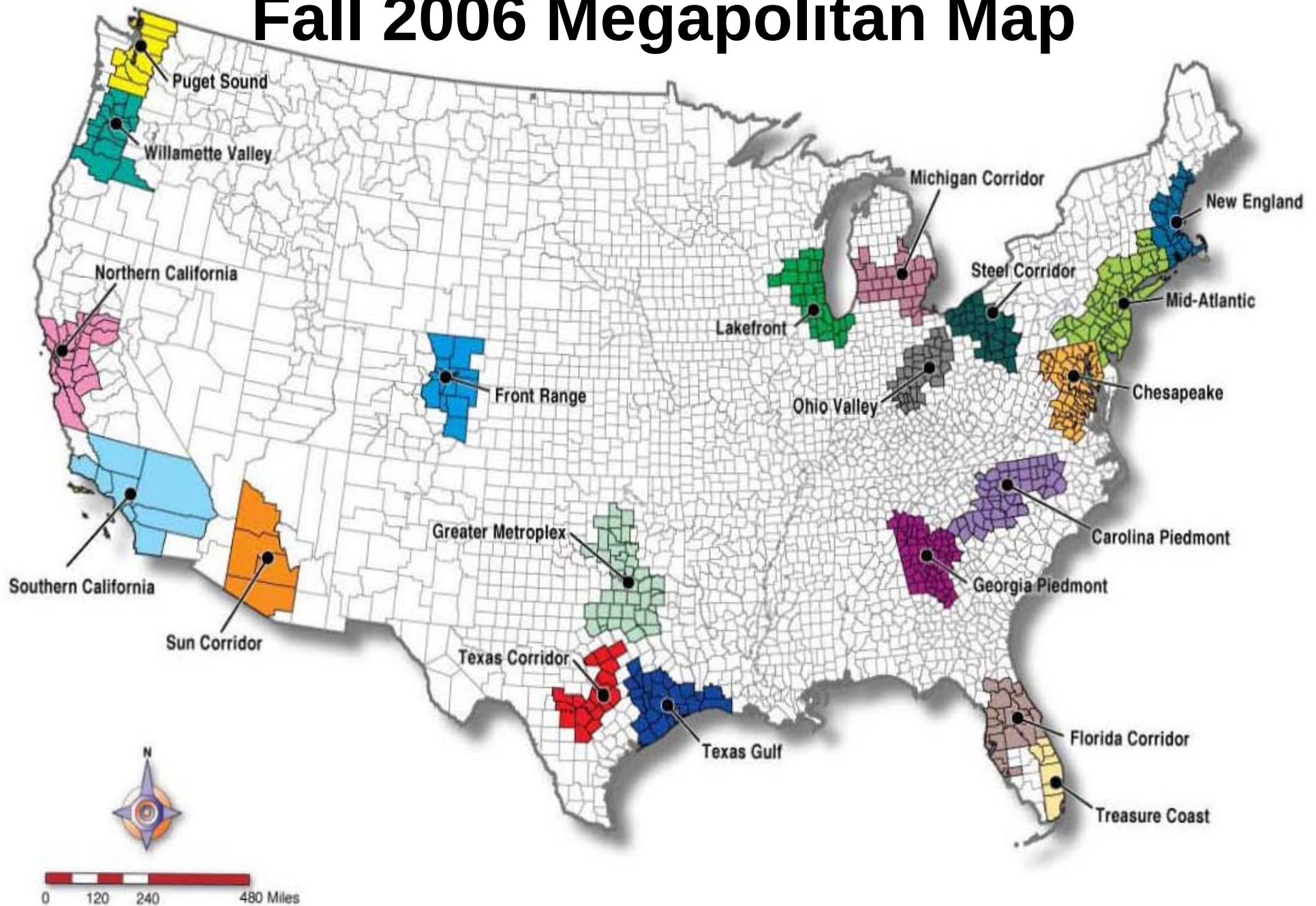
Megapolitan America - September 2006



Megapolitan America



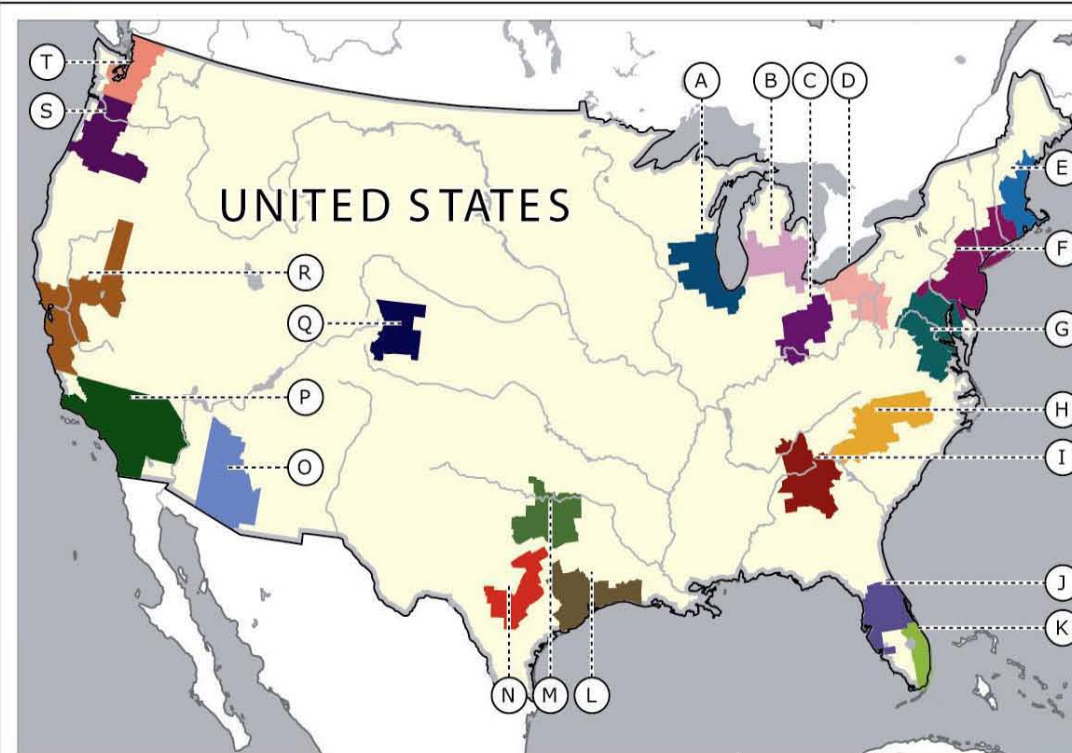
Fall 2006 Megapolitan Map



2006 Metropolitan Hierarchy

Types	Descriptions	Examples
Metropolitan Statistical Area	An “urbanized area” or “principal city” with at least 50,000 people plus surrounding counties with a 25 % “Employment Interchange Measure” (EIM) in 2000	Pittsburgh, Denver
Combined Statistical Area	Two or more adjacent micro and metropolitan areas that have an EIM of at least 15 % in 2000	Washington / Baltimore, Cleveland / Akron
Megapolitan Area—Defined by Virginia Tech Metropolitan Institute	Two or more metropolitan areas with anchor principal cities between 50 and 200 miles apart that will have an EIM of 15 % by 2040 based on projection	Sun Corridor (Phoenix / Tucson), Northern California (San Francisco / Sacramento)
Mega-Region Defined by RPA and Lincoln Institute	Large, connected networks of metropolitan areas that maintain environmental, cultural, and functional linkages	Piedmont, Texas Triangle

U.S. and China Megapolitans



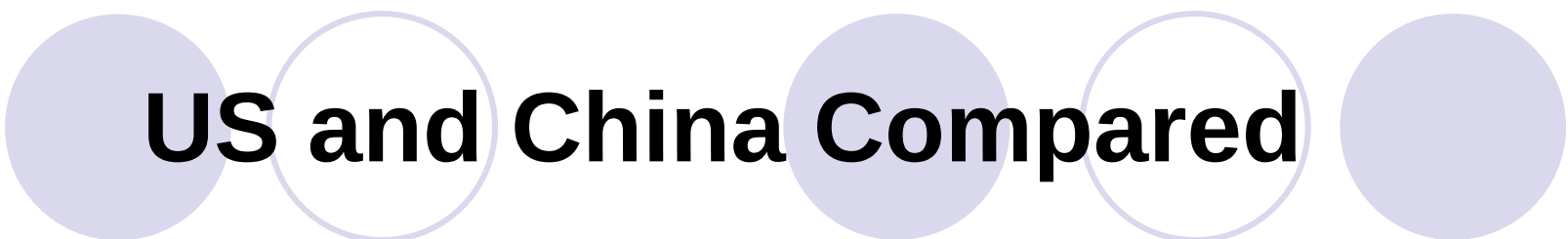
MEGAPOLITAN AMERICA

- | | |
|---------------------|-----------------------|
| A Lakefront | K Treasure Coast |
| B Michigan Corridor | L Texas Gulf |
| C Ohio Valley | M Greater Metroplex |
| D Steel Corridor | N Texas Corridor |
| E New England | O Sun Corridor |
| F Mid-Atlantic | P Southern California |
| G Chesapeake | Q Front Range |
| H Carolina Piedmont | R Northern California |
| I Southern Piedmont | S Wilamette Valley |
| J Florida Corridor | T Puget Sound |

MEGAPOLITAN CHINA

- 1 Harbin-Daqing-Qiqihar
- 2 Shenyang-Dalian
- 3 Beijing-Tianjin-Hebei
- 4 Shangdong Peninsula
- 5 Greater Xi' an
- 6 Zhengzhou-Kaifeng-Luoyang
- 7 Lower Yangtze Delta
- 8 Greater Wuhan
- 9 Chengdu-Chongqing
- 10 Changsha-Zhuzhou-Xiangtan
- 11 Fuzhou-Xiamen-Zhangzhou
- 12 Pearl River Delta



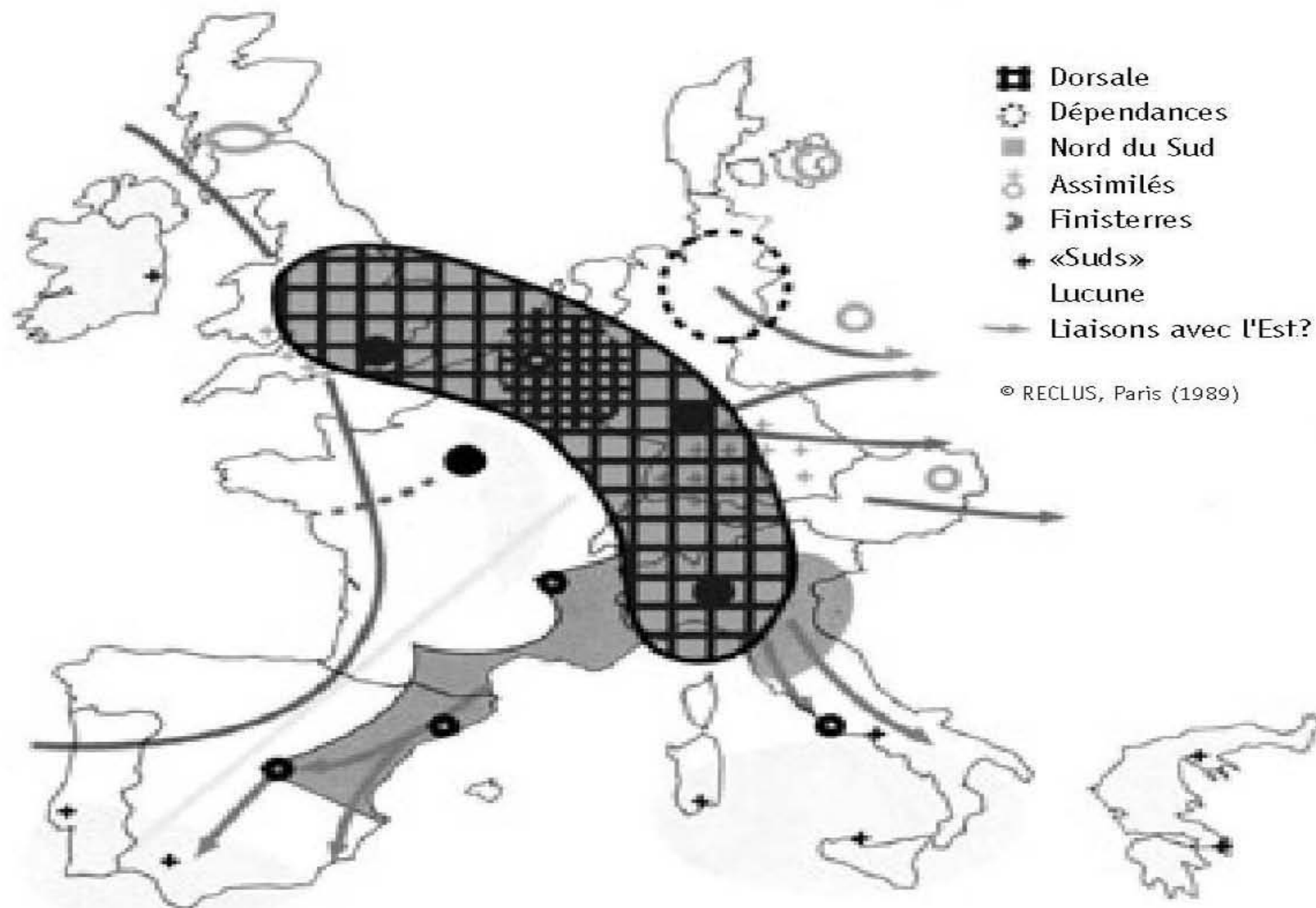


US and China Compared

<u>Measure</u>	<u>China Target</u>	<u>US Mega</u>
Land	20%	15%
Population	50%	60%
GDP	80% - 90%	70%

FIGURE 1

The "Blue Banana," depicting the economic core of the European Union from London to Milan



Sources: Lincoln Institute of Land Policy and Regional Plan Association (2004) and Faludi (2002)

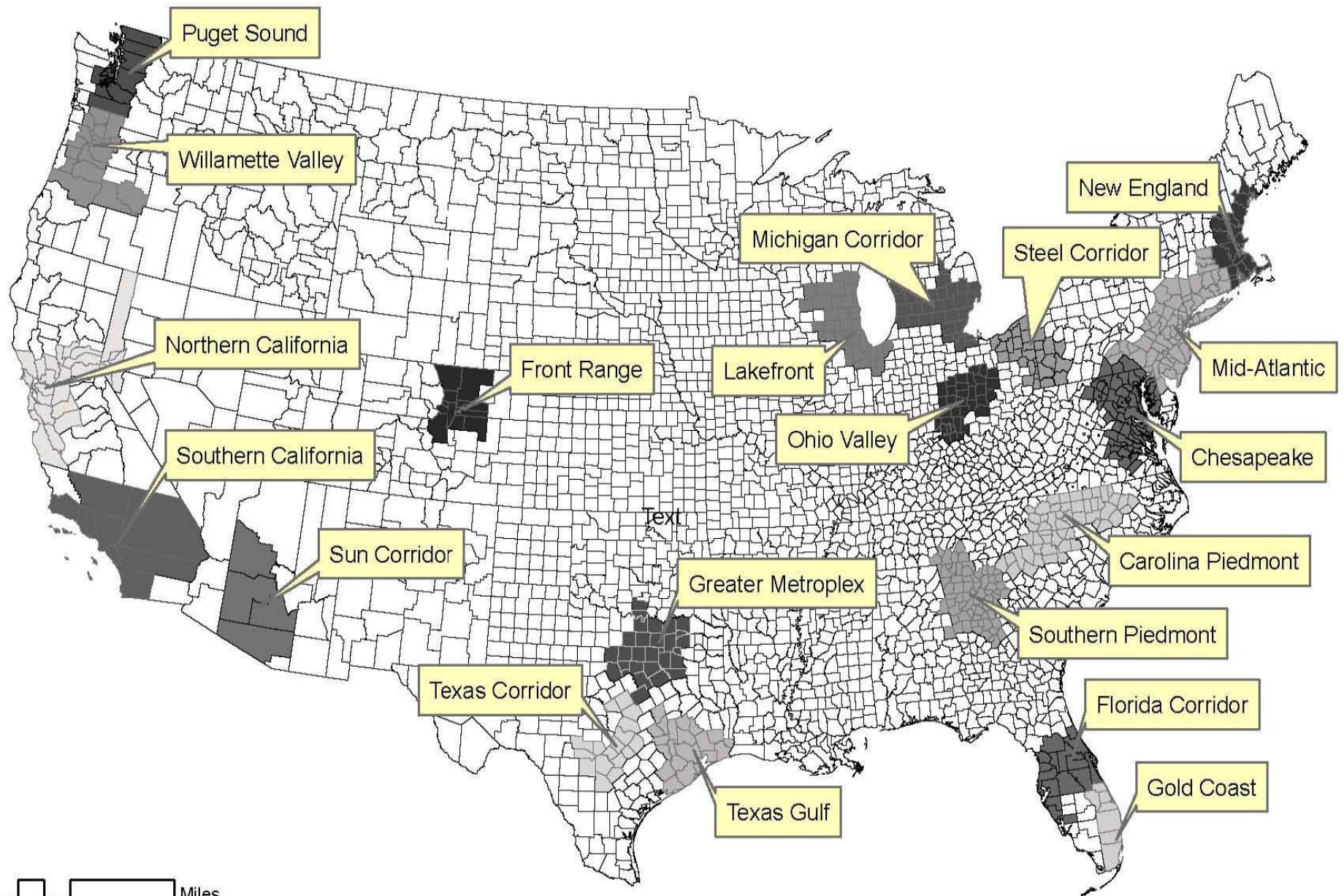
Refining Megapolitan Definition



- Will Reach a Census-Defined Employment Interchange Measure (or EIM) of 15 Percent by 2040
- Have Two or More Metropolitan Areas with Anchor Principal Cities Between 50 and 200 miles apart
- Are Never More Than a Day's Drive from End to End
- Are Large-Scale, But Not Intergalactic

Lang-Nelson Megapolitan Model 2007

- Produces 20 Megapolitan Areas, Most of Which are Sub Units of the Original 2005 Megapolitan Areas
- The New Macropolitan Areas are More Methodologically Defensible and Can Easily Be Adopted by the US Census Bureau
- The New Population Threshold to Qualify as a Megapolitan Area will Be 5 Million People by 2040.



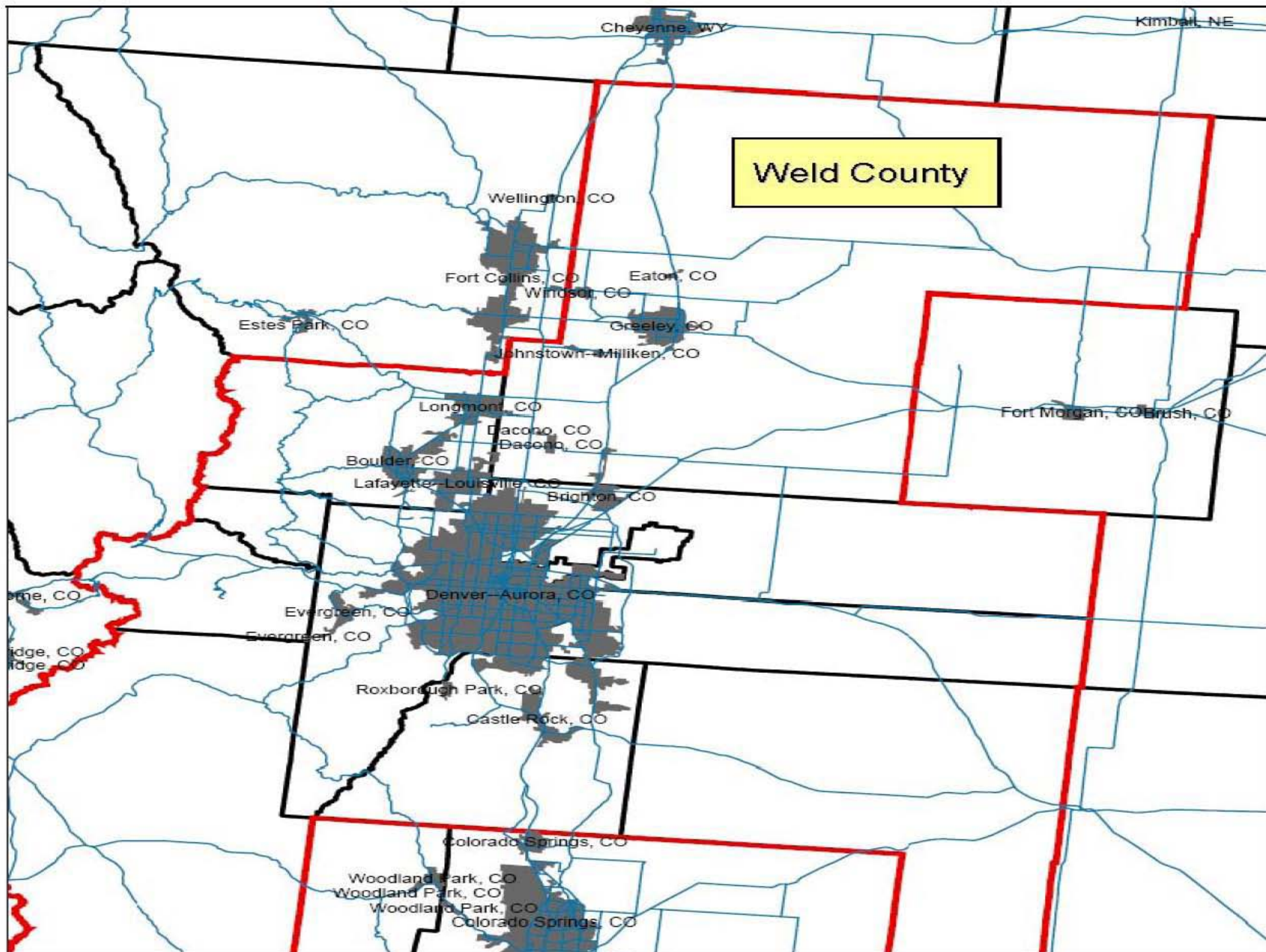
0 115 230 460 Miles

Metropolitan Institute
Virginia Tech
Alexandria 4/9/07

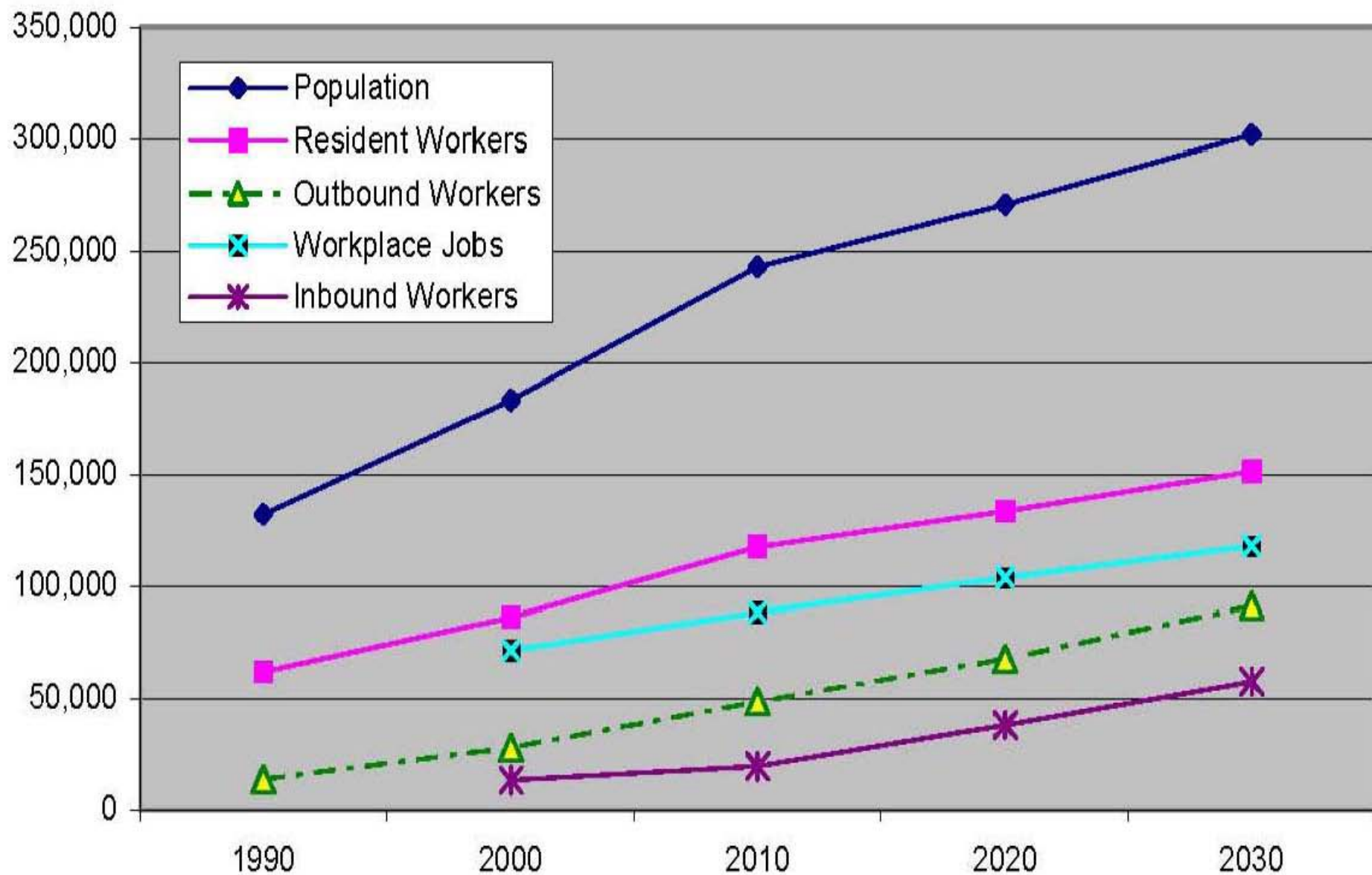
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Emerging Census “Combined Statistical Areas” by 2010, and Earlier

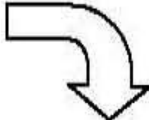
- Model predicted Boston-Providence before Census merged them
- Phoenix-Tucson
- Los Angeles-San Diego
- San Francisco-Sacramento
- Washington-Baltimore-Richmond
- Tampa-Orlando
- San Antonio-Austin
- Chicago-Milwaukee



Weld County, Colorado

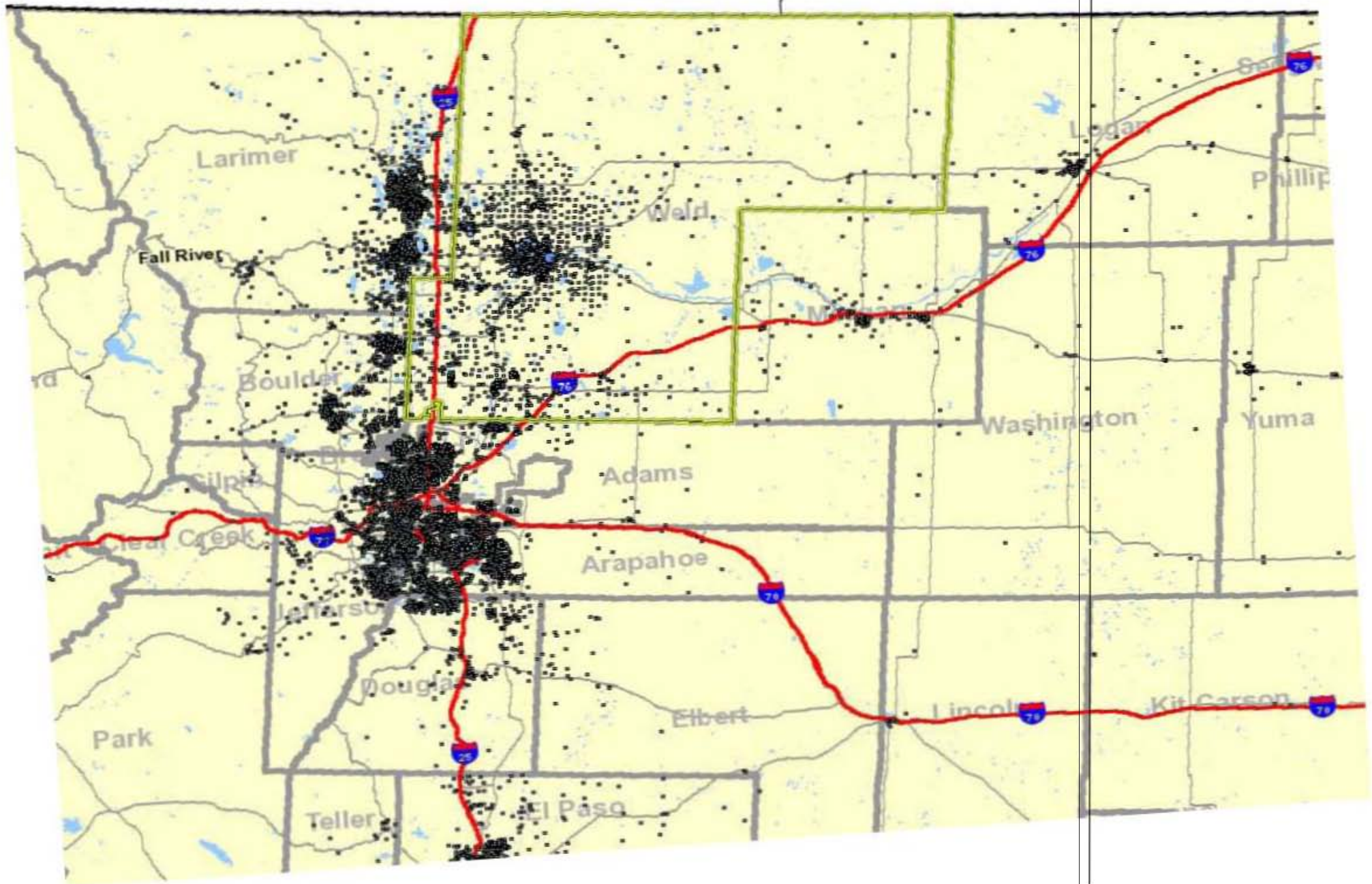


Migration into Weld County, 2004-2005

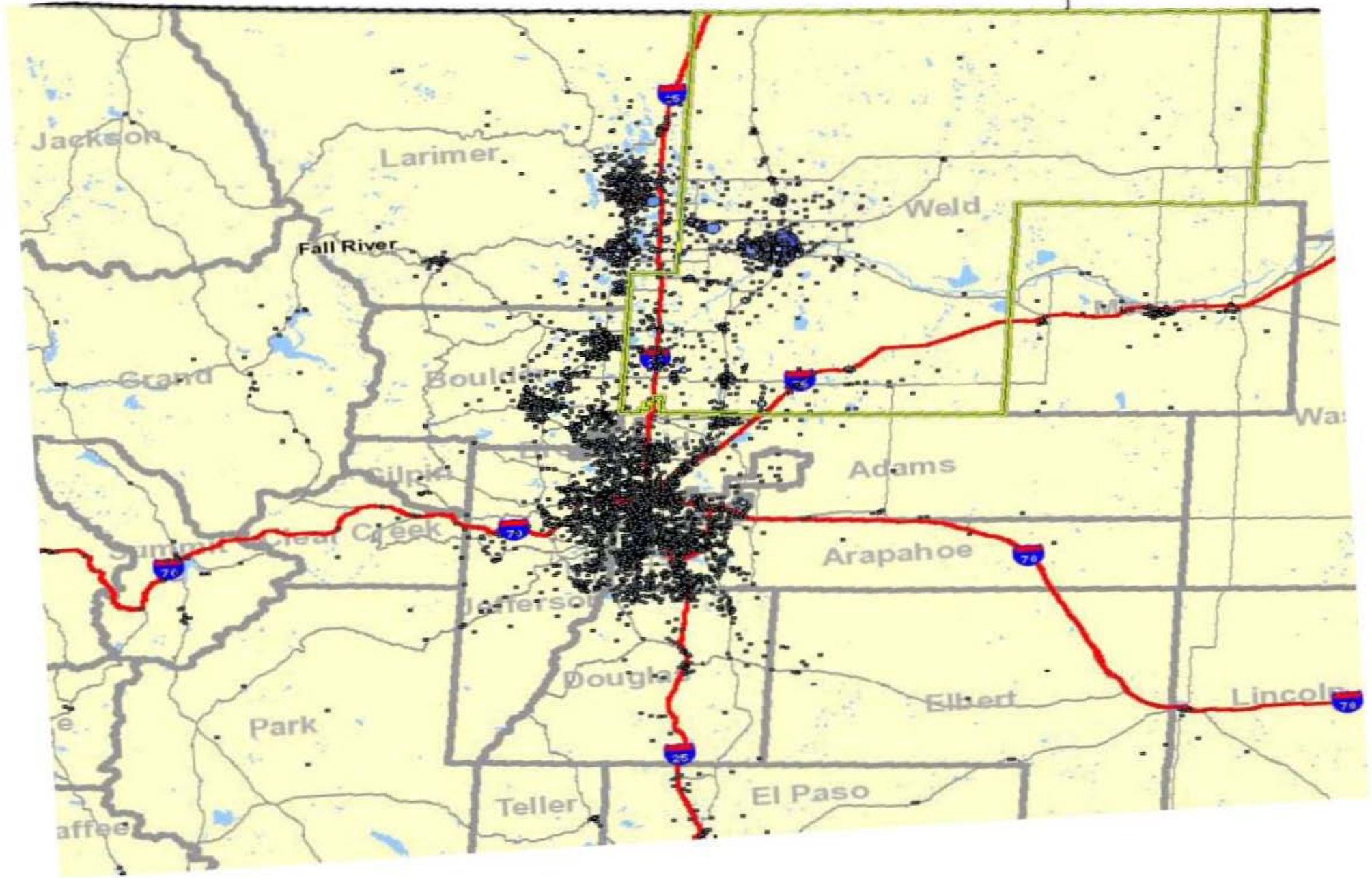
	Returns (~ households)	
Non-Migrants	65,341	
Pct In-Migration	10.4%	
Total In-Migration	7,603	
Foreign Immigrants	31	
From Different State	2,111	
From Same State	5,461	
	From Front Range Mega*	4,790
	Pct of Total In-Migration	63.0%

* Larimer, Boulder, Adams, Jefferson, Denver, Arapahoe,
Broomfield and Douglas Counties

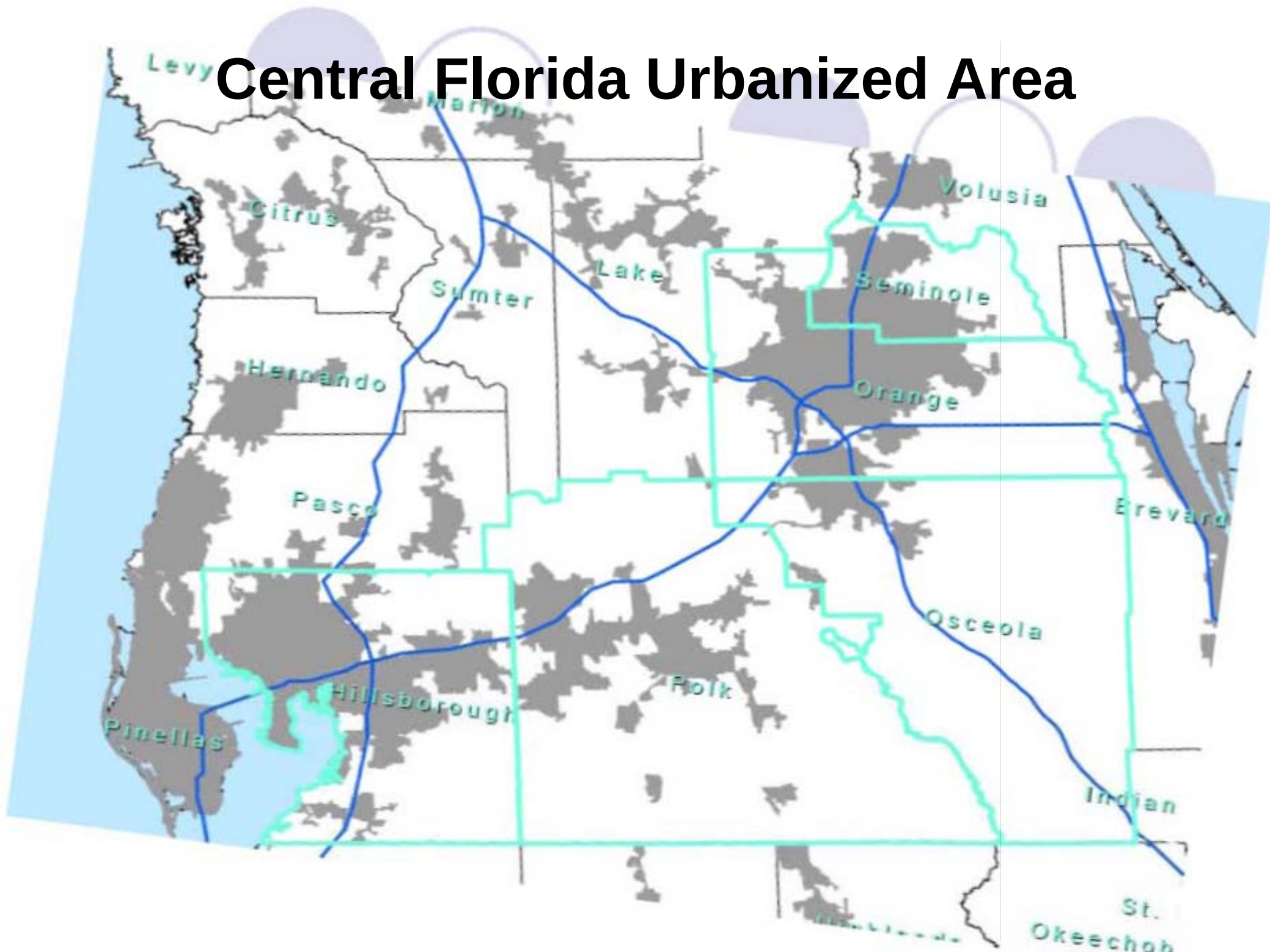
Labor Sheds (SS Data)



Commuter Sheds (SS Data)



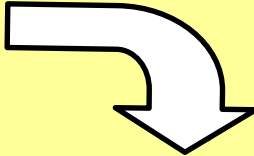
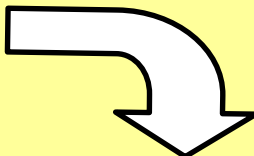
Central Florida Urbanized Area



Migration Patterns into Polk

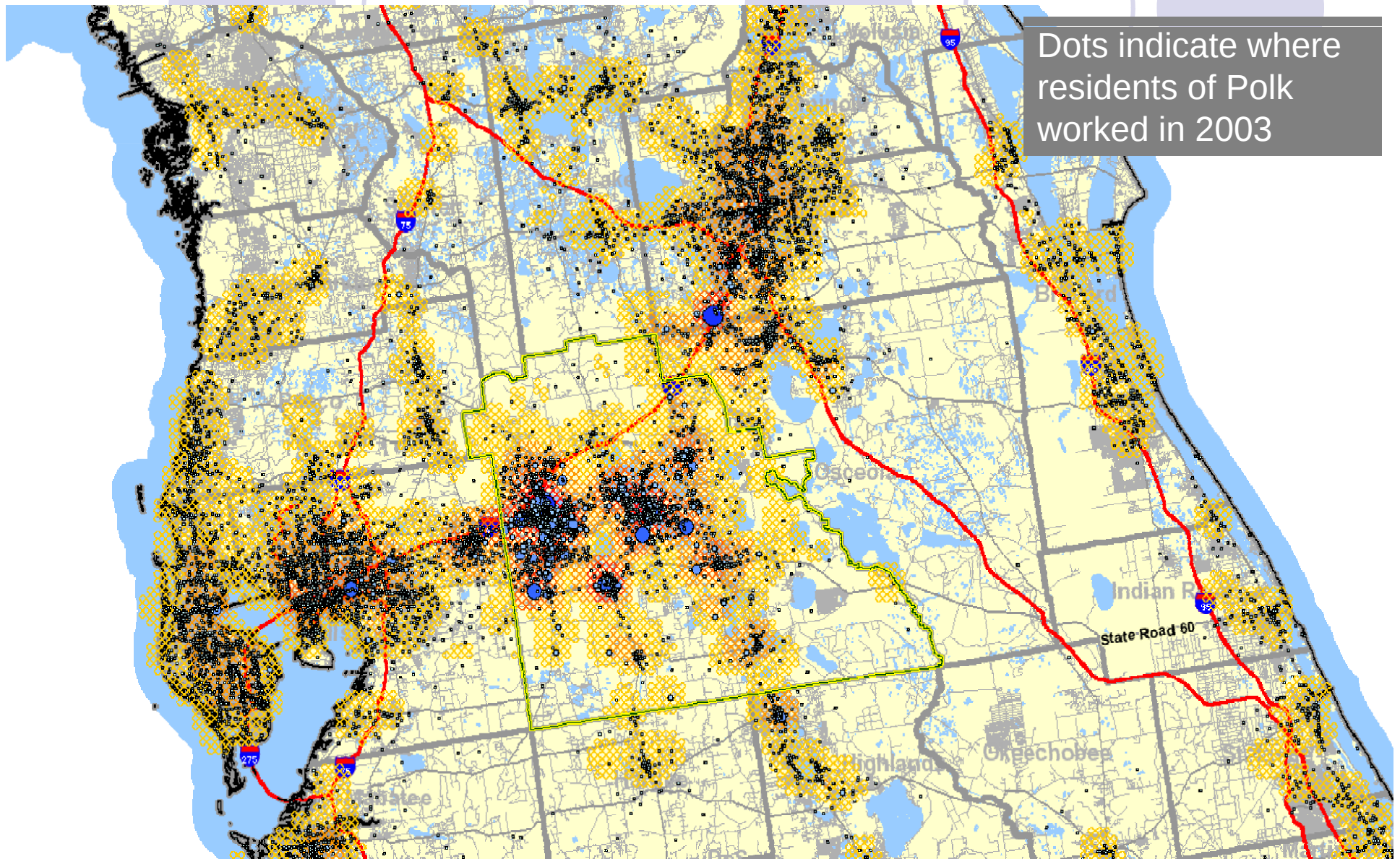
Migration into Polk County, 2004-2005

Returns (~ households)

Total In-Migration	16,698	
		
Foreign Immigrants	182	
From Another State	8,400	
From Florida	8,116	
		
	From Hillsborough	1,611
	From Orange/Osceola/Seminole	2,567
	From Remainder of Florida	3,938

Source: Internal Revenue Service.

Polk County Commuter Shed



Source: *Longitudinal Employer-Household Dynamics, US Census Bureau.*

The 20 Megapolitan Areas

Megapolitan Areas and Megaregions	Anchor Metro(s)	2005 Population	Land Area Sq. Miles
Northeast		51,601,118	60,917
New England	Boston/Providence	8,276,116	11,779
Mid-Atlantic	New York/Philadelphia	33,527,905	30,308
Chesapeake	Washington/Baltimore/Richmond	9,797,097	18,830
Great Lakes		34,267,189	68,021
Steel Corridor	Cleveland/Pittsburgh	7,067,896	16,131
Ohio Valley	Cincinnati/Columbus	5,344,052	15,123
Michigan Corridor	Detroit	8,969,861	19,002
Lakefront	Chicago/Milwaukee	12,885,380	17,765
Piedmont		13,953,787	46,494
Carolina Piedmont	Charlotte/Raleigh	7,012,769	25,735
Georgia Piedmont	Atlanta	6,941,018	20,759
Florida		13,823,188	24,367
Florida Corridor	Tampa/Orlando	7,851,525	16,836
Treasure Coast	Miami	5,971,663	7,531
Texas Triangle		18,187,772	68,959
Texas Gulf	Houston	6,247,170	19,967
Texas Corridor	San Antonio/Austin	3,965,018	16,536
Greater Metroplex	Dallas-Ft Worth/Oklahoma City	7,975,584	32,456
Front Range	Denver	3,880,126	20,766
Sun Corridor	Phoenix/Tucson	4,988,564	31,882
Cascadia		7,350,438	35,226
Puget Sound	Seattle	4,106,956	14,415
Willamette Valley	Portland	3,243,482	20,811
Northern California	Bay Area/Sacramento	11,288,313	24,186
Southern California	Los Angeles/San Diego	21,720,656	49,033
Megapolitan Totals		181,061,151	429,851
US Total		296,410,404	2,959,064

Note: Megaregions are shown in bold; Anchor Metros rank in the top 50 US Metropolitan Areas
Source: Metropolitan Institute at Virginia Tech, US Bureau of the Census and
US Geological Survey.

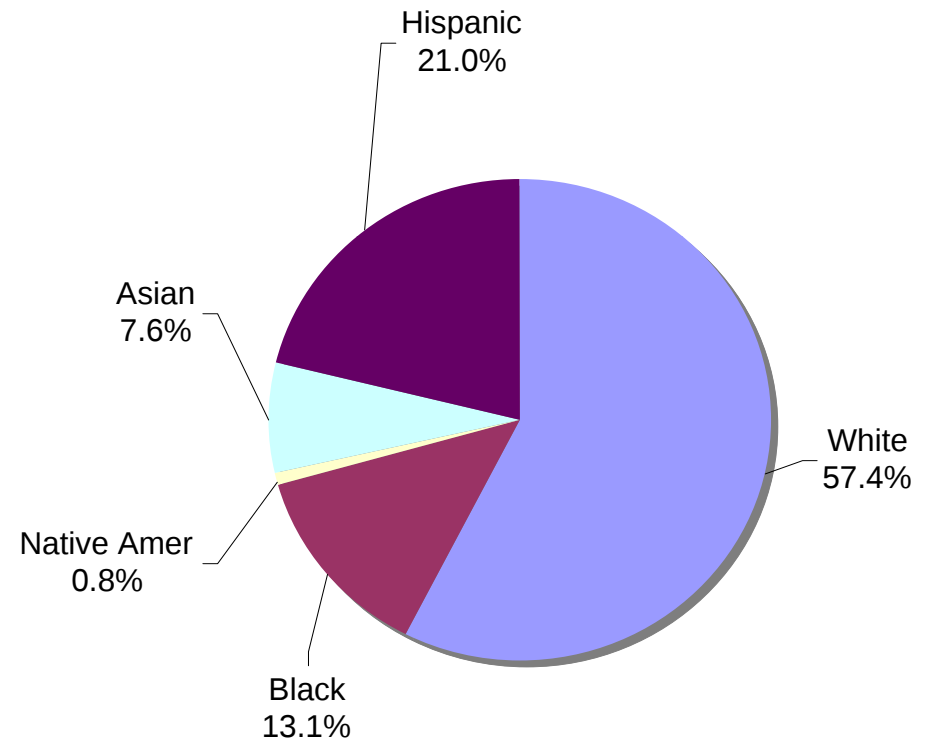
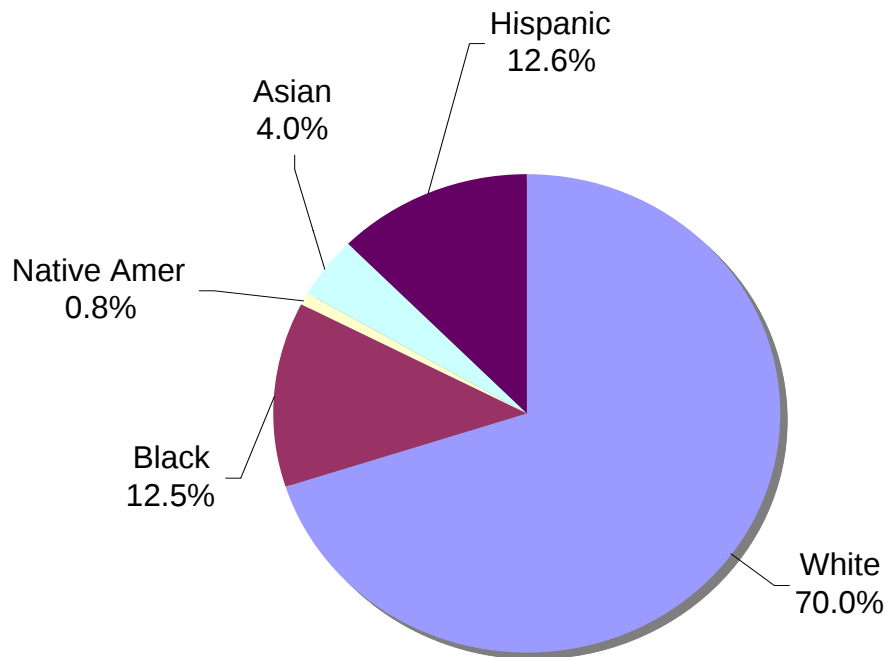
M e g a p o l i t a n P o p u l a t i o n G r o w t h , 2 0 0 0 - 2 0 3 0

M e g a p o l i t a n A r e a s a n d M e g a r e g i o n s	2 0 0 0 P o p u l a t i o n	2 0 3 0 P o p u l a t i o n	I n c r e a s e A b s o l u t e	P c t.
M e g a l o p o l i s	4 9 , 9 4 8 , 0 6 4	6 2 , 4 2 7 , 0 7 0	1 2 , 4 7 9 , 0 0 6	2 5 . 0 %
New England	8 , 1 3 3 , 2 1 9	9 , 8 7 3 , 6 6 8	1 , 7 4 0 , 4 4 9	2 1 . 4 %
Mid - A t l a n t i c	3 2 , 6 5 6 , 3 0 9	3 9 , 0 7 2 , 1 9 6	6 , 4 1 5 , 8 8 7	1 9 . 6 %
C h e s a p e a k e	9 , 1 5 8 , 5 3 6	1 3 , 4 8 1 , 2 0 6	4 , 3 2 2 , 6 7 0	4 7 . 2 %
G r e a t L a k e s	3 3 , 6 4 1 , 2 2 0	3 9 , 5 3 6 , 7 7 5	5 , 8 9 5 , 5 5 5	1 7 . 5 %
S t e e l C o r r i d o r	7 , 1 4 0 , 2 8 7	7 , 4 3 4 , 6 8 9	2 9 4 , 4 0 2	4 . 1 %
O h i o V a l l e y	5 , 1 9 8 , 1 0 0	6 , 3 7 4 , 7 7 6	1 , 1 7 6 , 6 7 6	2 2 . 6 %
M i c h i g a n C o r r i d o r	8 , 8 3 5 , 7 4 2	1 0 , 0 7 0 , 1 4 2	1 , 2 3 4 , 4 0 0	1 4 . 0 %
L a k e F r o n t	1 2 , 4 6 7 , 0 9 1	1 5 , 6 5 7 , 1 6 8	3 , 1 9 0 , 0 7 7	2 5 . 6 %
P i e d m o n t	1 2 , 6 3 3 , 9 2 6	1 9 , 0 9 6 , 4 7 4	6 , 4 6 2 , 5 4 8	5 1 . 2 %
C a r o l i n a P i e d m o n t	6 , 4 6 0 , 3 3 8	9 , 4 3 1 , 8 0 9	2 , 9 7 1 , 4 7 1	4 6 . 0 %
G e o r g i a P i e d m o n t	6 , 1 7 3 , 5 8 8	9 , 6 6 4 , 6 6 5	3 , 4 9 1 , 0 7 7	5 6 . 5 %
F l o r i d a	1 2 , 4 7 4 , 4 2 3	2 0 , 3 1 2 , 5 5 4	7 , 8 3 8 , 1 3 1	6 2 . 8 %
F l o r i d a C o r r i d o r	6 , 9 7 5 , 7 7 2	1 1 , 3 5 2 , 5 0 6	4 , 3 7 6 , 7 3 4	6 2 . 7 %
T r e a s u r e C o a s t	5 , 4 9 8 , 6 5 1	8 , 9 6 0 , 0 4 8	3 , 4 6 1 , 3 9 7	6 2 . 9 %
T e x a s T r i a n g l e	1 6 , 5 2 5 , 2 0 3	2 5 , 5 9 8 , 6 9 7	9 , 0 7 3 , 4 9 4	5 4 . 9 %
T e x a s G u l f	5 , 6 9 9 , 7 0 4	8 , 5 3 5 , 9 6 1	2 , 8 3 6 , 2 5 7	4 9 . 8 %
T e x a s C o r r i d o r	3 , 5 7 3 , 6 2 1	5 , 8 7 0 , 4 7 0	2 , 2 9 6 , 8 4 9	6 4 . 3 %
G r e a t e r M e t r o p l e x	7 , 2 5 1 , 8 7 8	1 1 , 1 9 2 , 2 6 6	3 , 9 4 0 , 3 8 8	5 4 . 3 %
F r o n t R a n g e	3 , 5 8 2 , 6 8 8	5 , 5 9 4 , 5 2 3	2 , 0 1 1 , 8 3 5	5 6 . 2 %
S u n C o r r i d o r	4 , 2 9 5 , 5 1 6	7 , 8 3 9 , 8 7 3	3 , 5 4 4 , 3 5 7	8 2 . 5 %
C a s c a d i a	6 , 9 0 1 , 1 6 0	9 , 9 2 7 , 2 1 7	3 , 0 2 6 , 0 5 7	4 3 . 8 %
P u g e t S o u n d	3 , 8 9 2 , 0 1 6	5 , 5 5 6 , 1 5 4	1 , 6 6 4 , 1 3 8	4 2 . 8 %
W i l l a m e t t e V a l l e y	3 , 0 0 9 , 1 4 4	4 , 3 7 1 , 0 6 3	1 , 3 6 1 , 9 1 9	4 5 . 3 %
N o r t h e r n C a l i f o r n i a	1 0 , 7 8 8 , 5 9 9	1 5 , 0 5 7 , 7 1 9	4 , 2 6 9 , 1 2 0	3 9 . 6 %
S o u t h e r n C a l i f o r n i a	2 0 , 3 2 6 , 8 3 1	2 7 , 7 9 6 , 9 0 0	7 , 4 7 0 , 0 6 9	3 6 . 7 %
M e g a p o l i t a n T o t a l	1 7 1 , 1 1 7 , 6 3 0	2 3 3 , 1 8 7 , 8 0 2	6 2 , 0 7 0 , 1 7 2	3 6 . 3 %
U S T o t a l	2 8 2 , 1 9 3 , 4 7 7	3 7 8 , 3 0 2 , 7 3 6	9 6 , 1 0 9 , 2 5 9	3 4 . 1 %

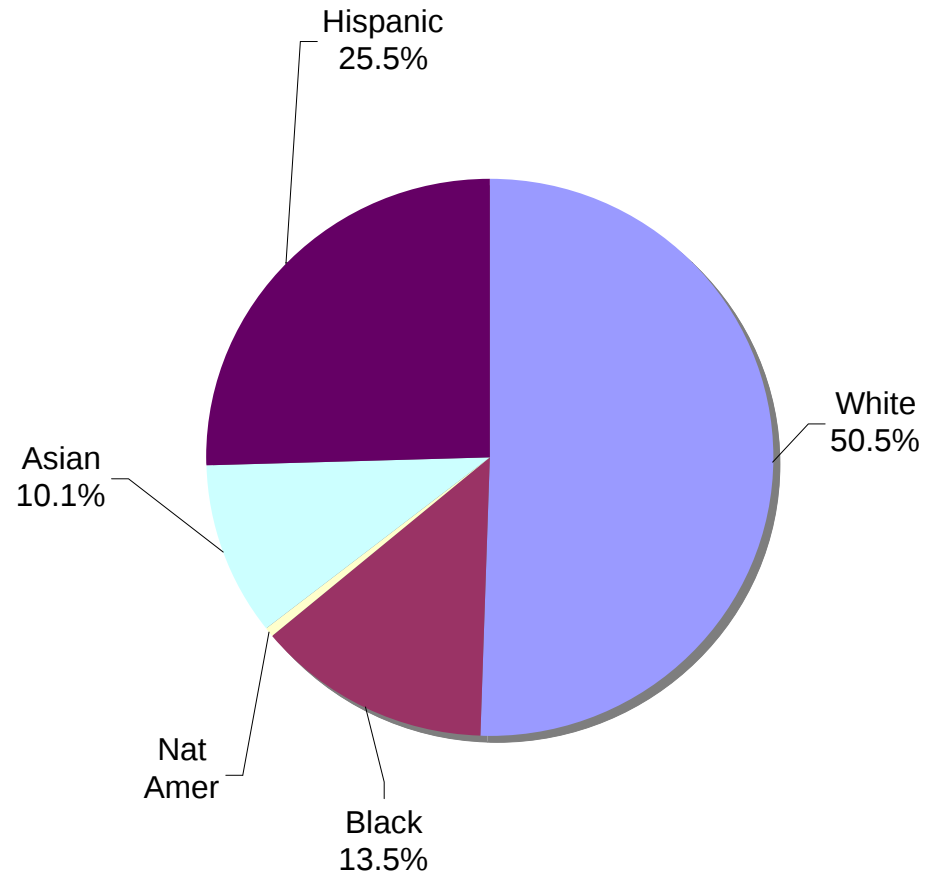
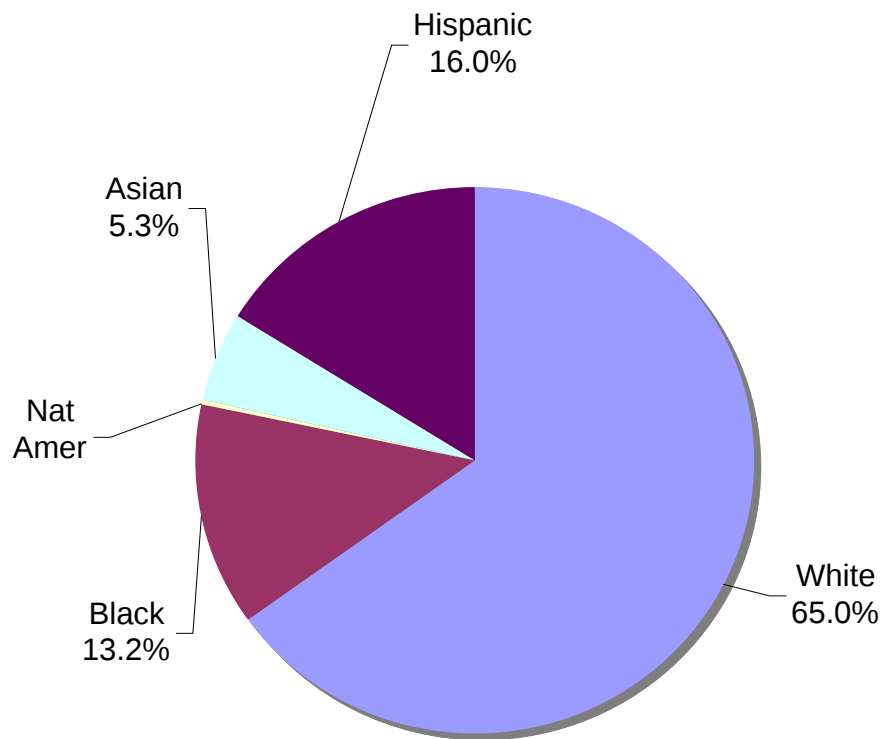
Note: Megaregions are shown in bold.

Source: Metropolitan Institute at Virginia Tech, 7/1/00 population from U S Bureau of the Census and 7/1/30 projection based on data from Woods & Poole Economics, Inc.

Racial Composition 2000-2030, US



Racial Composition 2000-2030, Megas



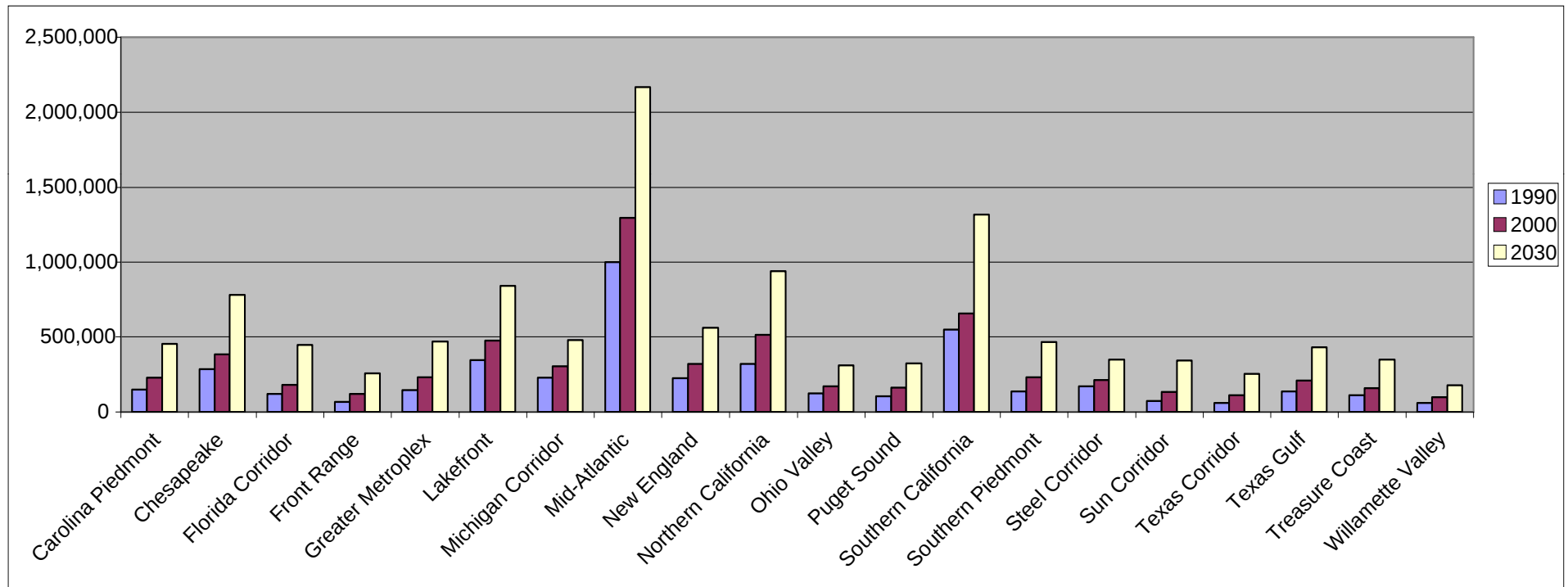
Share of Population Change by Race 2000-2030 by Geography

[Megas = 66% of Growth]

<u>Geography</u>	<u>White</u>	<u>Black</u>	<u>Native Amer.</u>	<u>Asian</u>	<u>Hisp.</u>
Non-Mega	13,150	2,577	678	2,883	12,090
<i>Share of Change</i>	<i>41.9%</i>	<i>8.2%</i>	<i>2.2%</i>	<i>9.2%</i>	<i>38.5%</i>
Megapolitan	6,410	8,939	203	14,330	31,849
<i>Share of Change</i>	<i>10.4%</i>	<i>14.5%</i>	<i>0.3%</i>	<i>23.2%</i>	<i>51.6%</i>

Gross Regional Product by Mega

2000-2030



Share of Change in Gross Regional Product by Geography, 2000-2030

(figures in trillions of 2006 dollars)

<u>Geography</u>	<u>2000</u>	<u>2030</u>	<u>Change</u>	<u>Share</u>
US	\$9,120	\$17,254	\$8,134	
Megapolitans	\$6,191	\$11,717	\$5,526	68%
Non-Megapolitans	\$2,929	\$5,537	\$2,608	32%

Why Study the Megapolitans



- Megapolitans are the New Geography of Mid-21st Century America
- Megapolitans Give a Physical Focus to the Projection of Numbers for American Population Growth
- Megapolitans Vividly Profile the Nation's Biggest Market Opportunities and Planning Challenges