

Building Sustainable Communities

Stephen Hardy, AICP
BNIM Architects





Sustainable design “meets the needs of the present without compromising the ability of future generations to meet their own needs.”

- World Commission on the Environment and Development



It is to the interest of the city, and of every individual within it, that all lands within the limits of the city be as fully and advantageously occupied as possible and thereby become as valuable as possible. These results can be achieved only if lands are occupied and used for the purposes to which they are naturally and, therefore, best adapted.

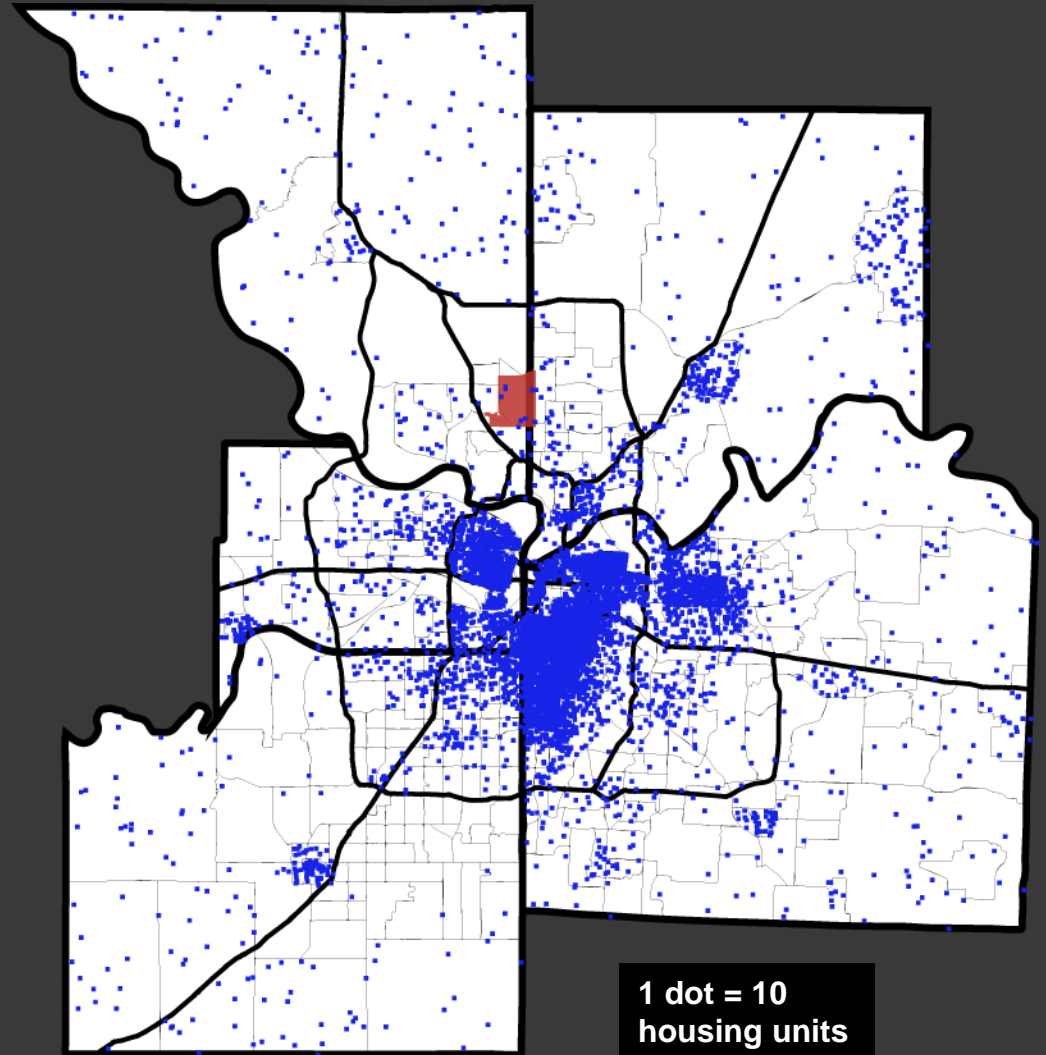
George Kessler, 1917



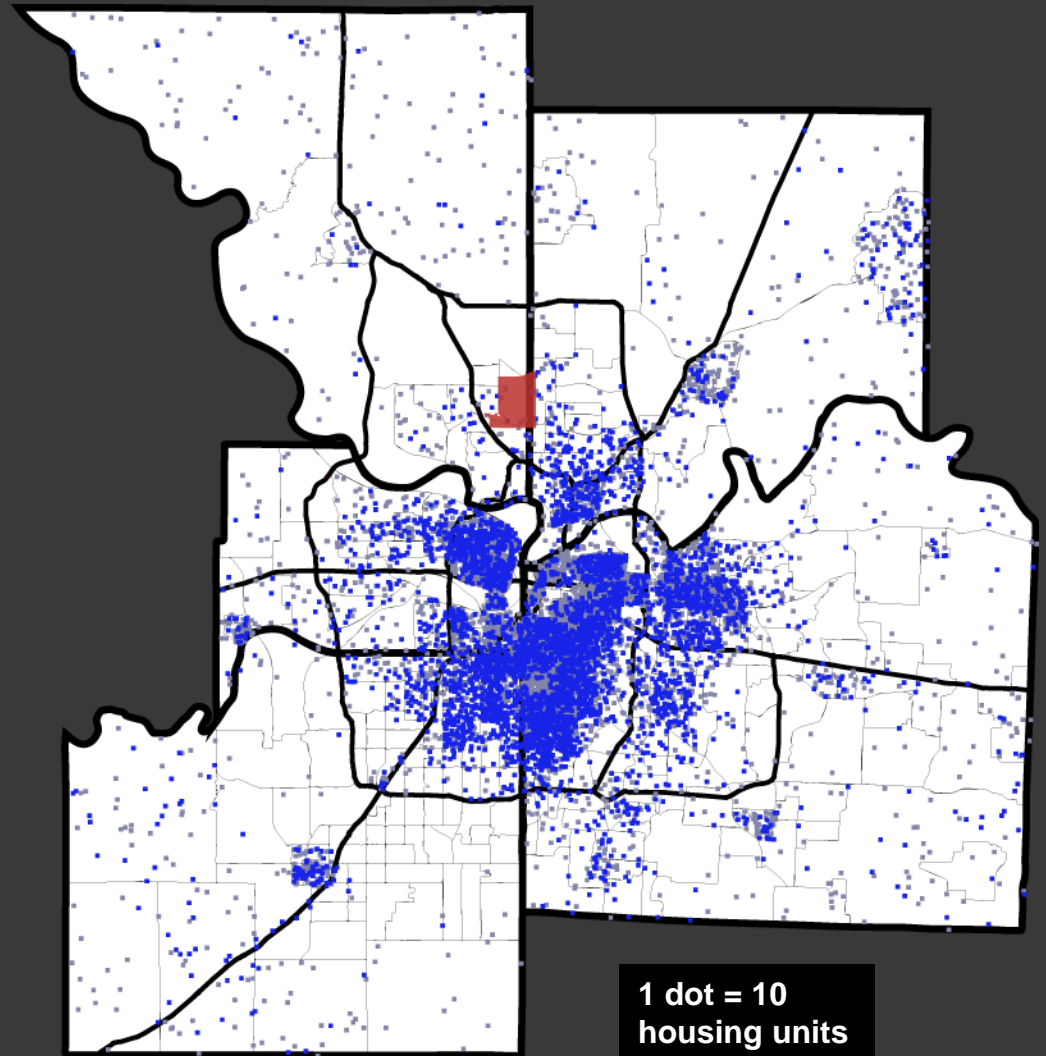
The lesson of every European city is the wisdom of thinking in terms of generations, rather than in terms of months or years-in the planning of a city.

J.C. Nichols, 1923

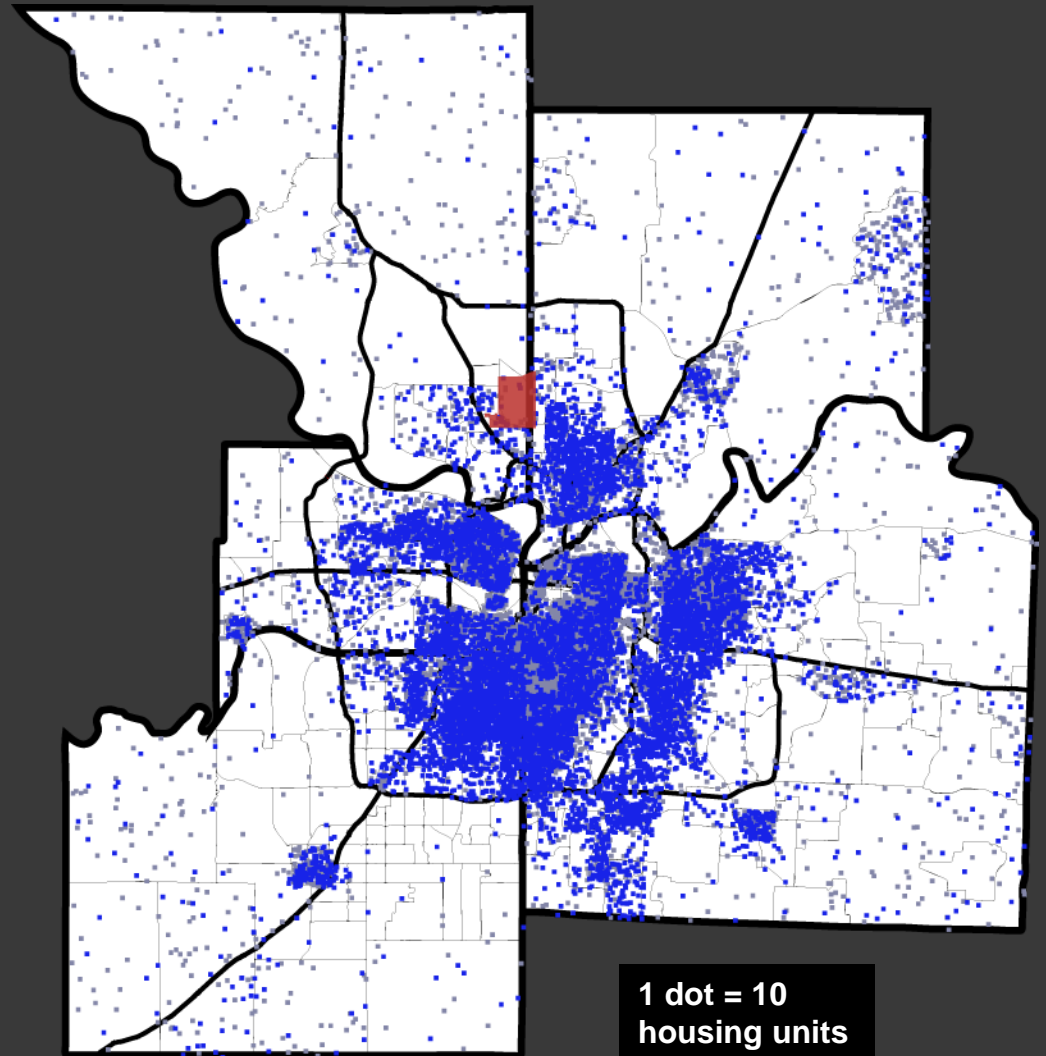
Housing built prior to 1940



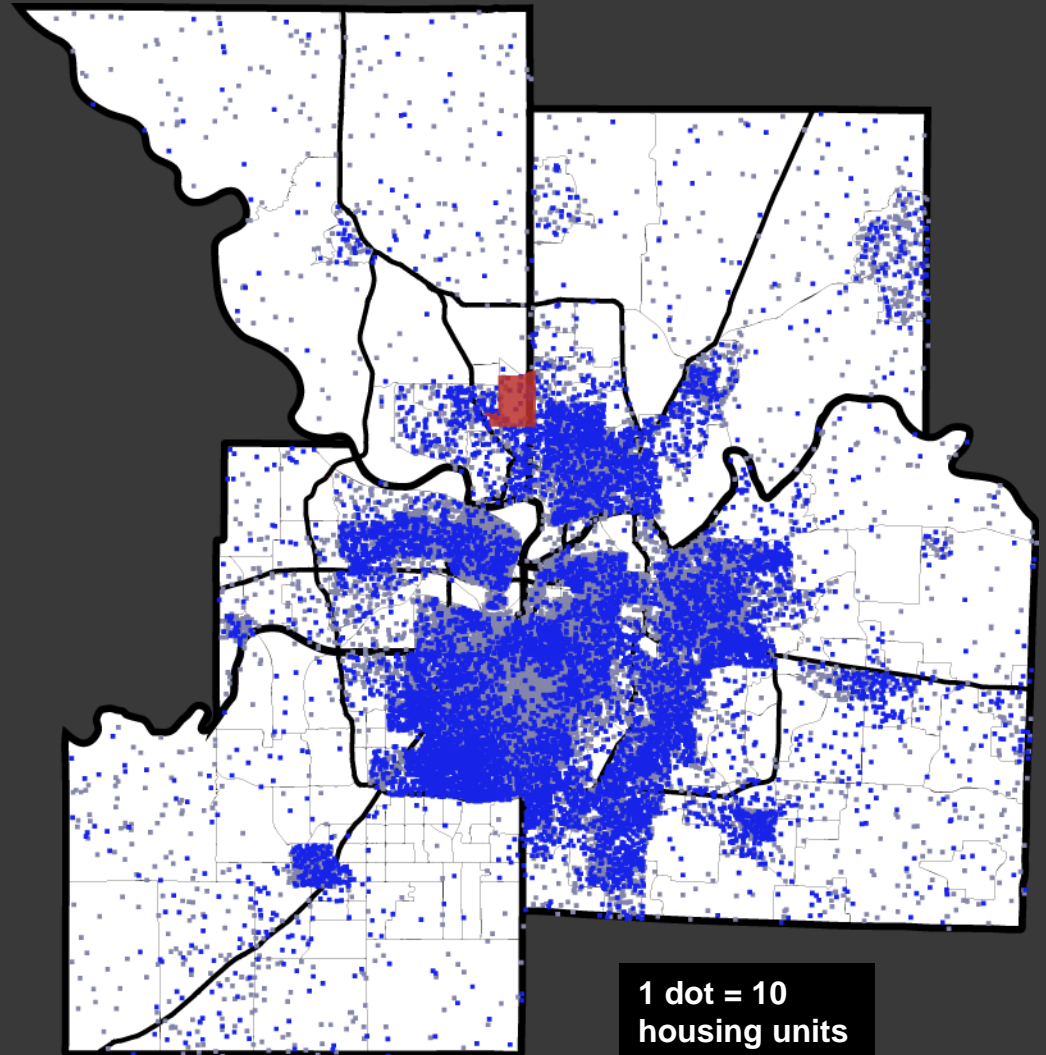
Housing built between 1940-1950



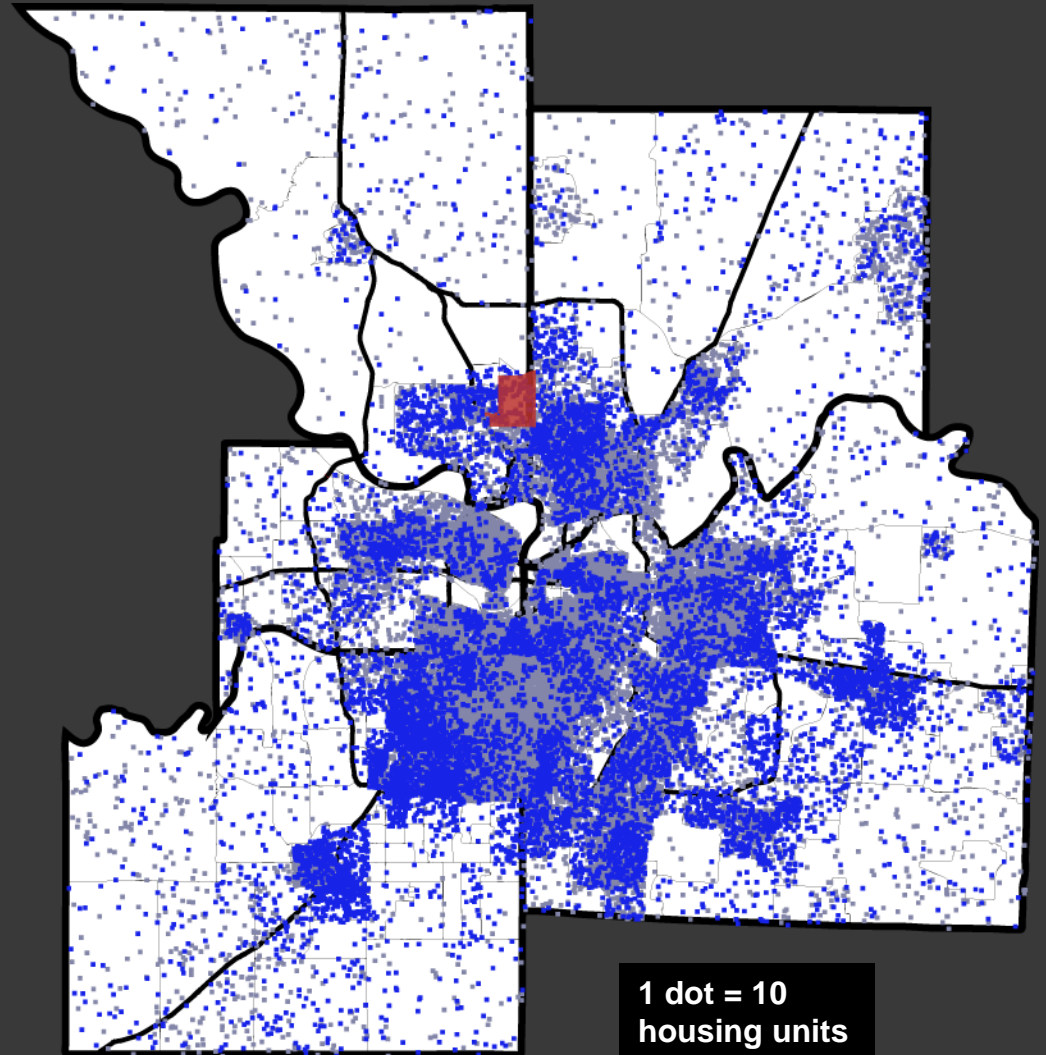
Housing built between 1950-1960



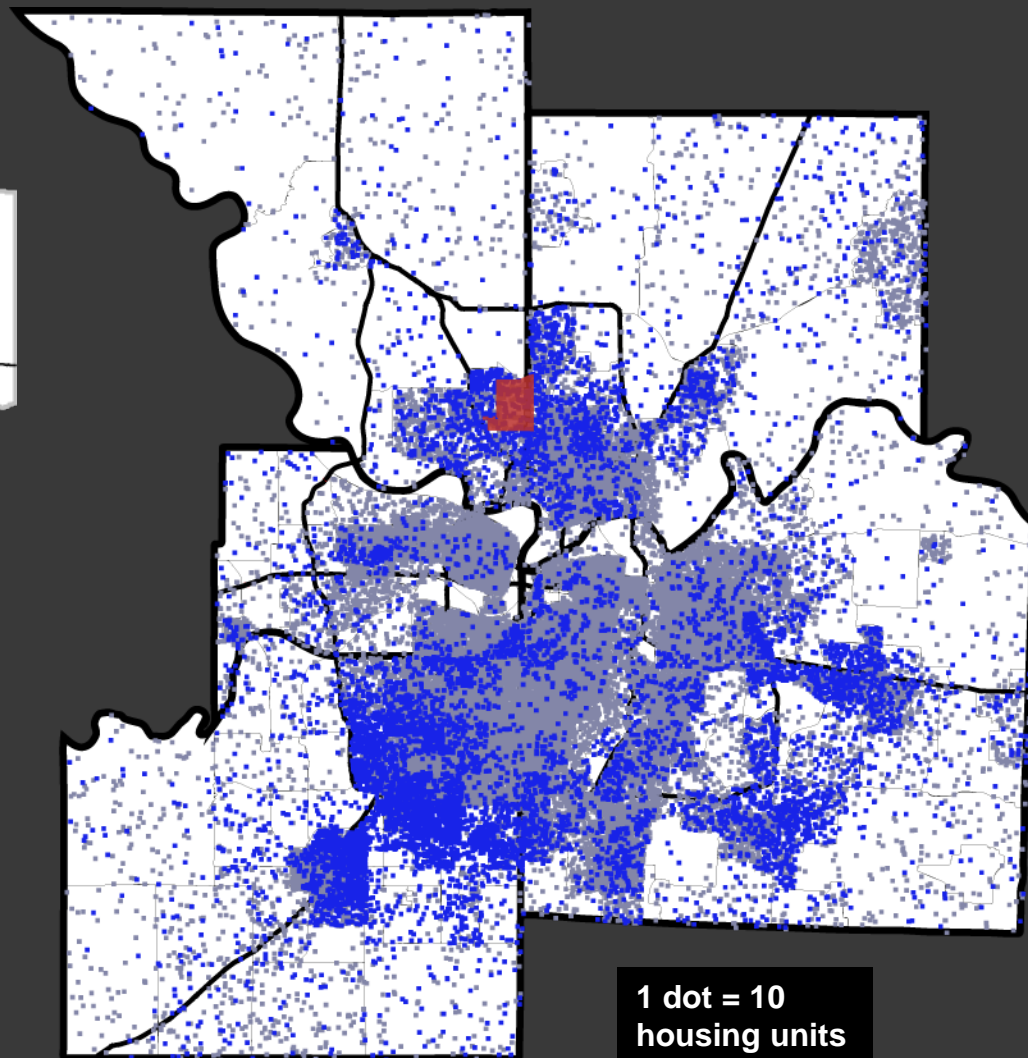
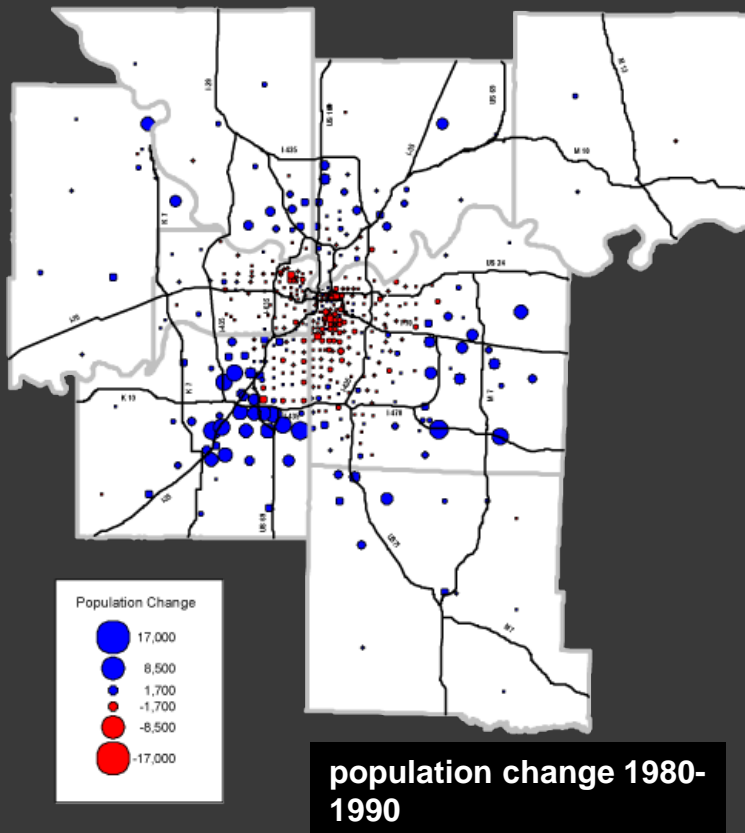
Housing built between 1960-1970



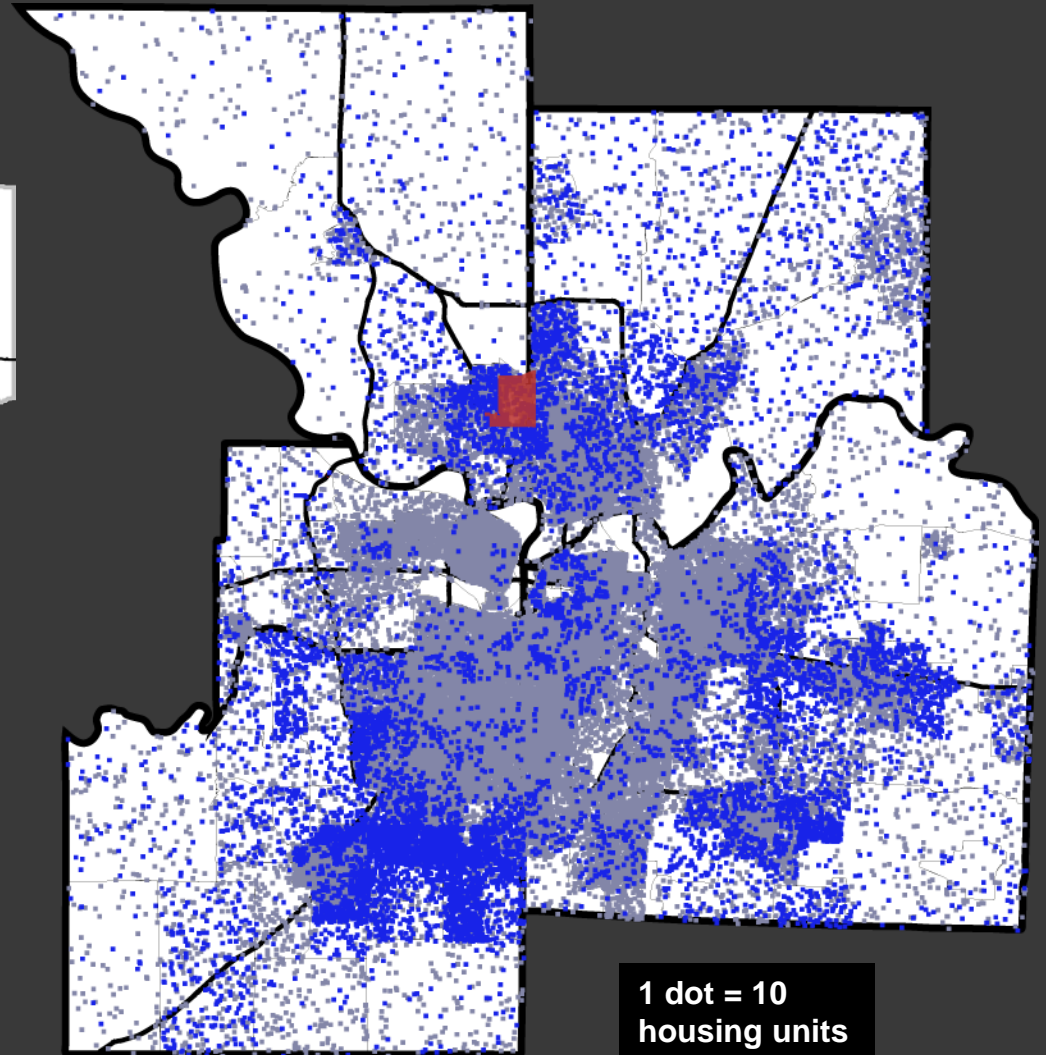
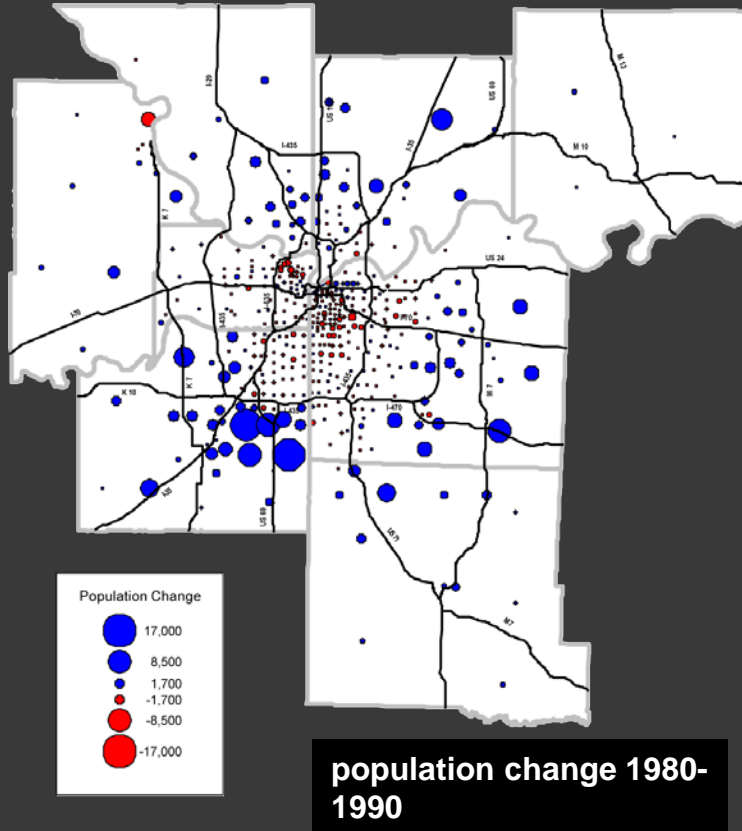
Housing built between 1970-1980



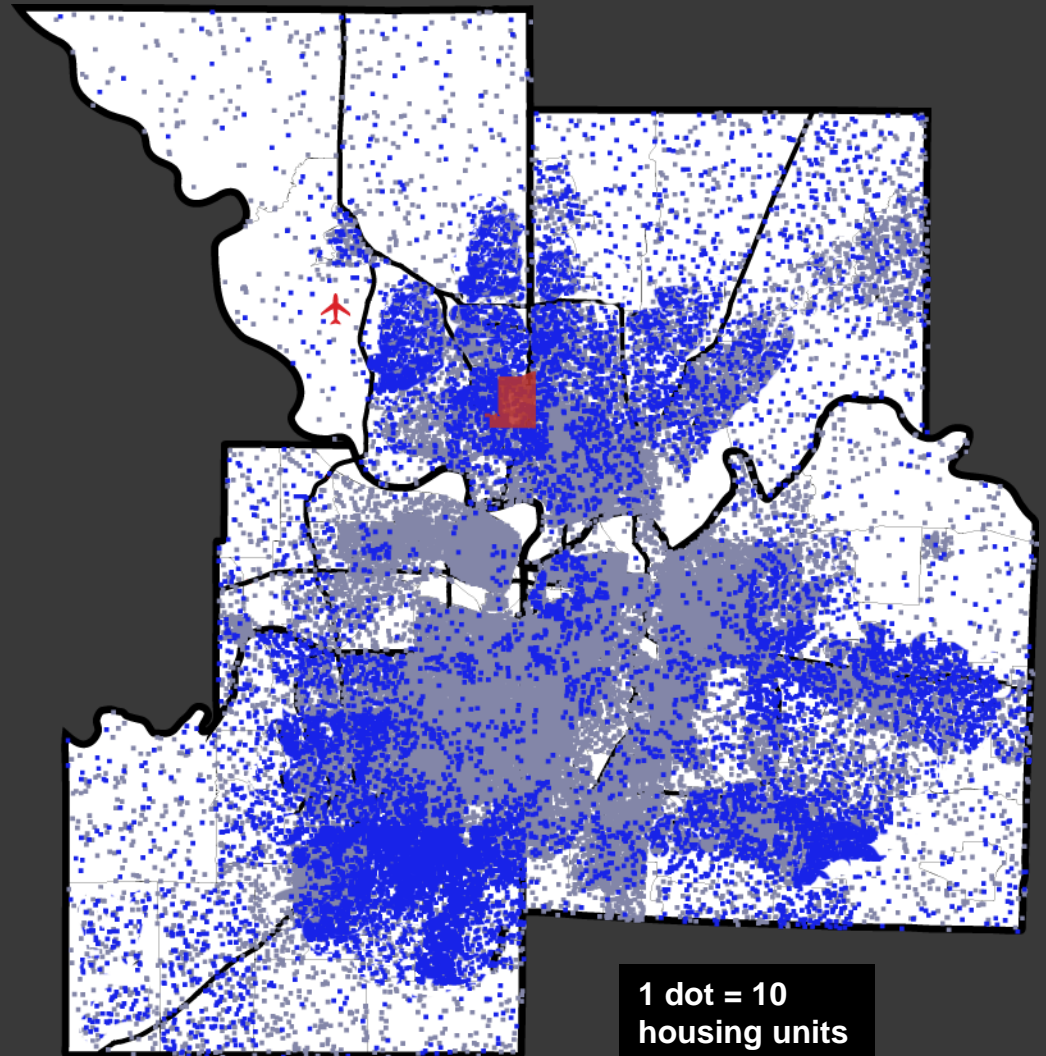
Housing built between 1980-1990

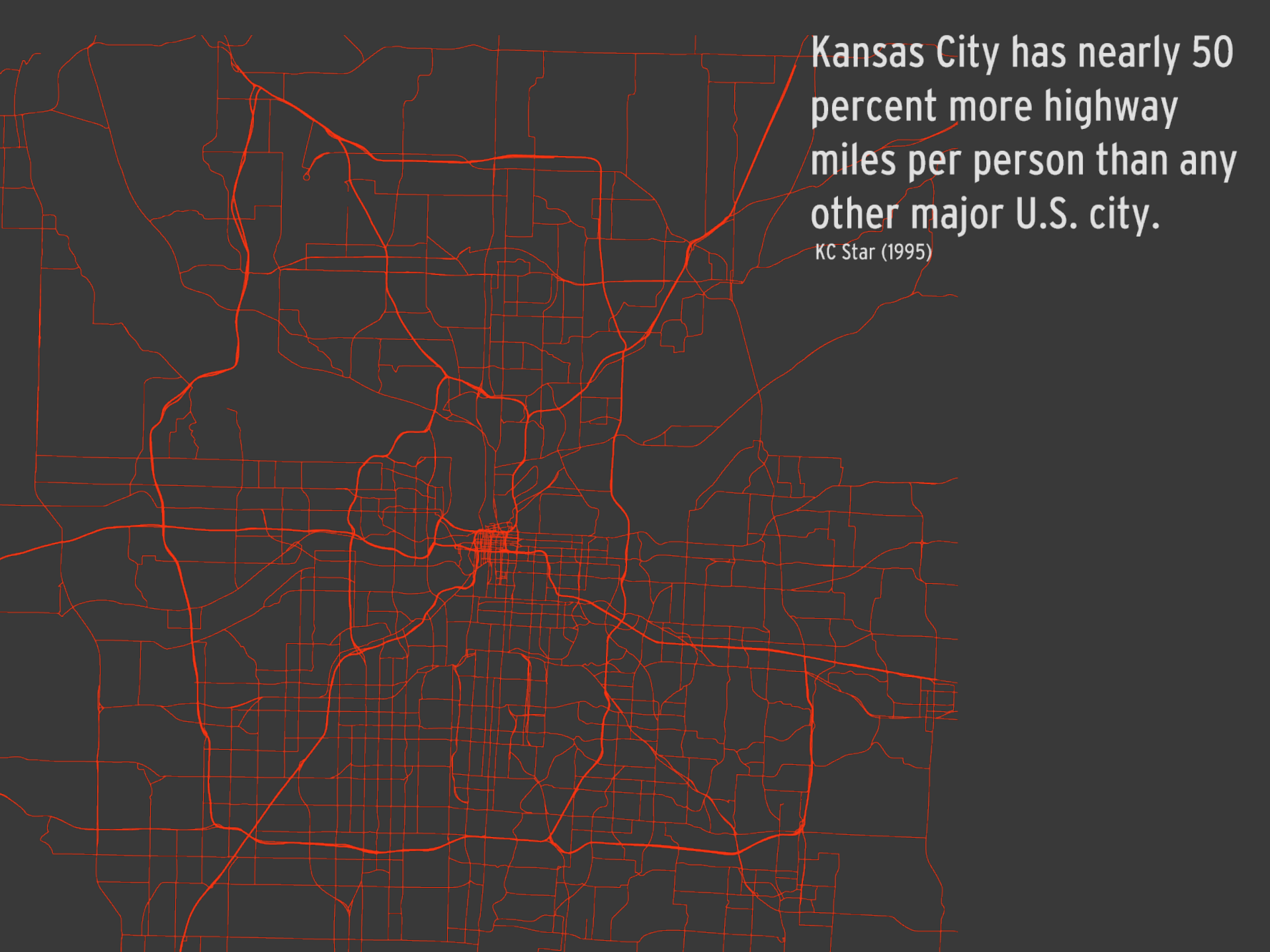


Housing built between 1990-2000



Housing built between 2000-2020?

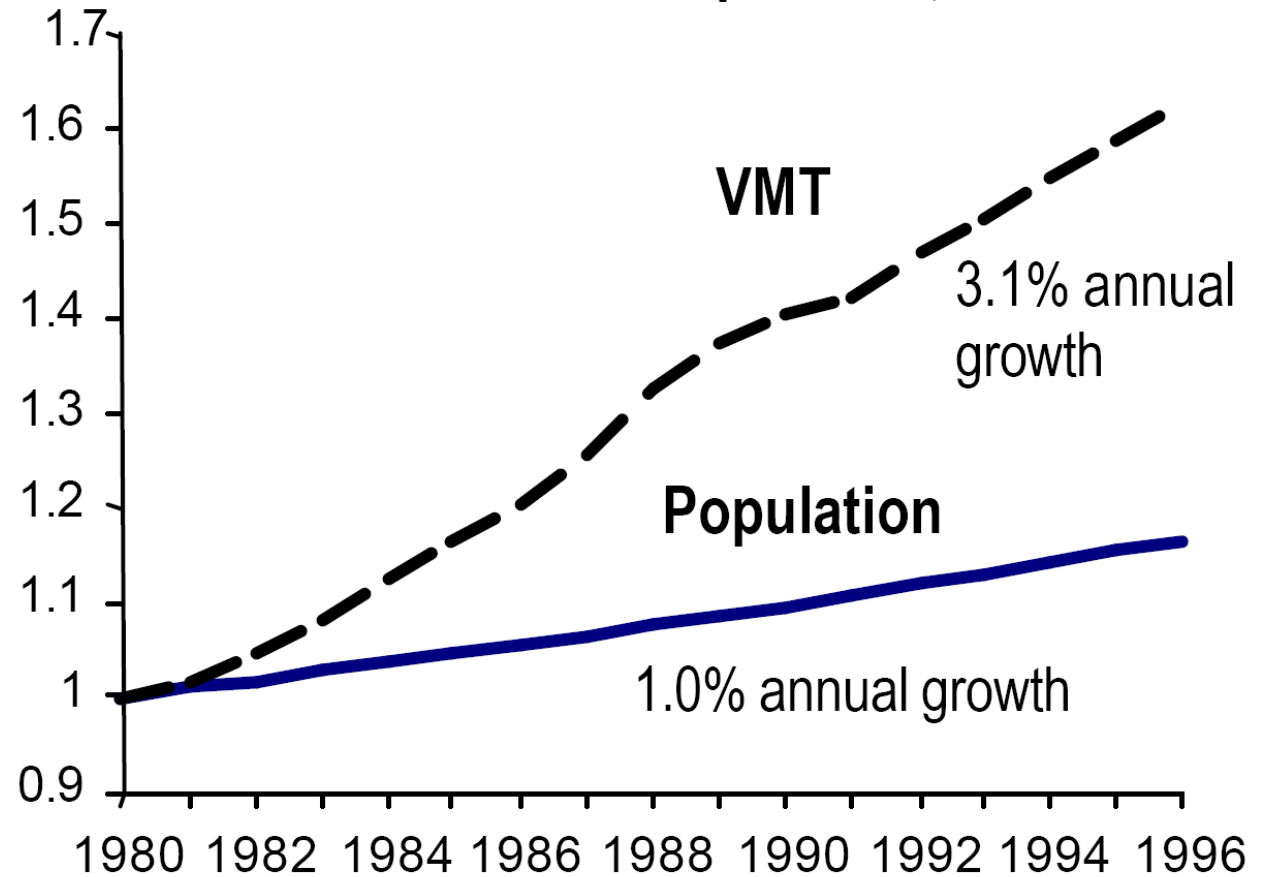




Kansas City has nearly 50
percent more highway
miles per person than any
other major U.S. city.

KC Star (1995)

Figure 3-1: Growth in Vehicle Miles of Travel and Population, 1980-1997



Scale: 1980 value = 1.0

Sources: U.S. Department of Transportation, Federal Highway Administration. *Highway Statistics (Summary to 1995, and annual editions, 1996 and 1997)*, Washington, DC.

A yellow circle with a thick border, containing text about population growth.

K.C. Population
Growth **16%**
1960-1990

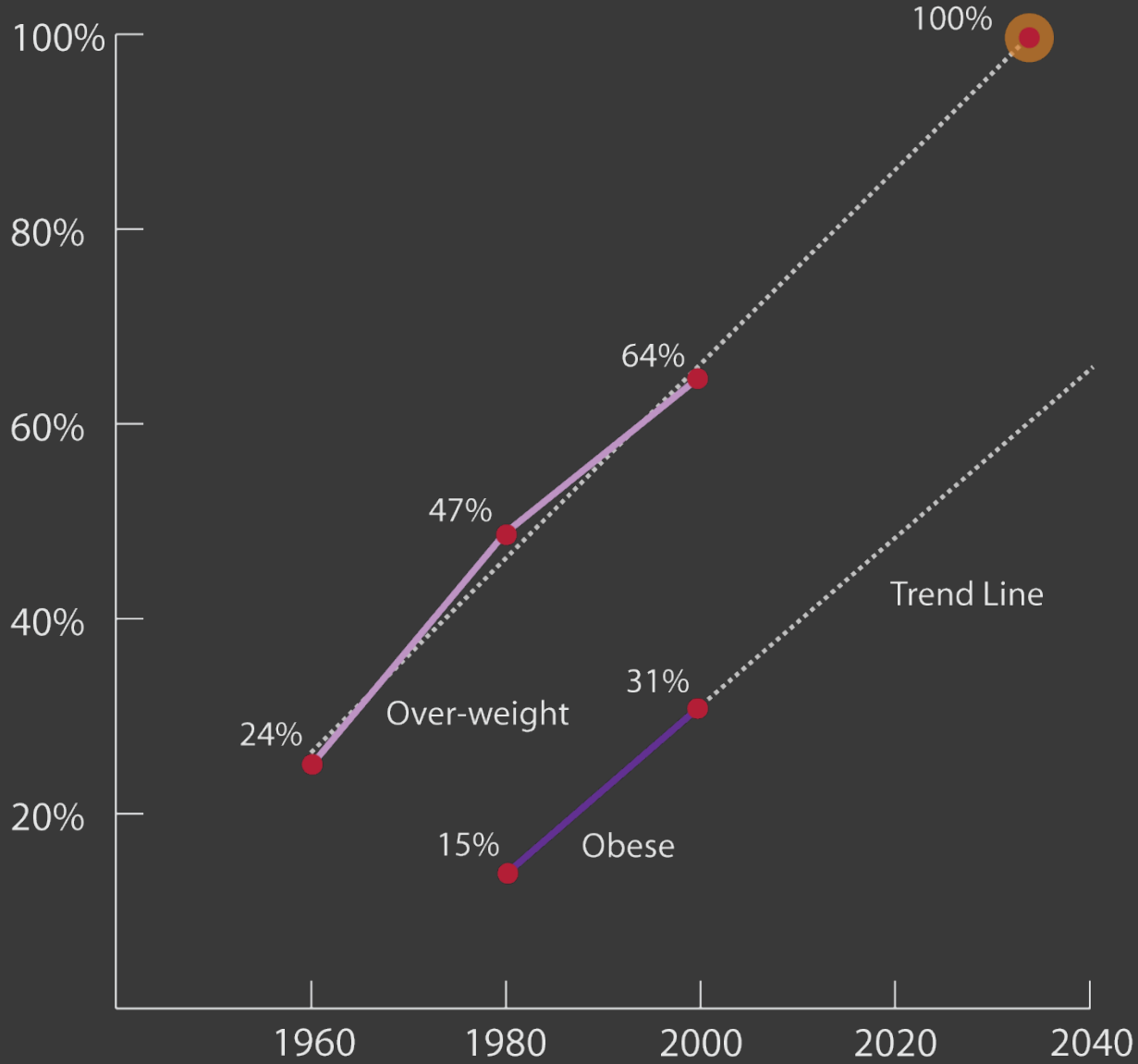
An orange circle with a thick border, containing text about sprawl growth.

K.C. Sprawl
Growth **55%**
1960-1990

2006 FATTEST CITIES

1. Chicago (5)
2. Las Vegas (9)
3. Los Angeles (21*)
4. Dallas (6)
5. Houston (1)
6. Memphis (4)
7. Long Beach, Calif. (20)
8. El Paso (11)
- 9. Kansas City, Mo. (18)**
10. Mesa, Ariz. (15)
11. Indianapolis (13)
12. San Antonio (10)
13. Fort Worth (14)
14. Miami (19)
15. Detroit (3)
16. Columbus, Ohio (16)
17. Oklahoma City (21)
18. Cleveland (24*)
19. Wichita (17)

National Obesity Trend



60% of Children walked to school in 1973...



...NOW only 13% do. Metropolis October 2006

Average % of Income Spent on Housing + Transportation

transportation

housing

Center for Neighborhood Technology



Kansas city

Boston

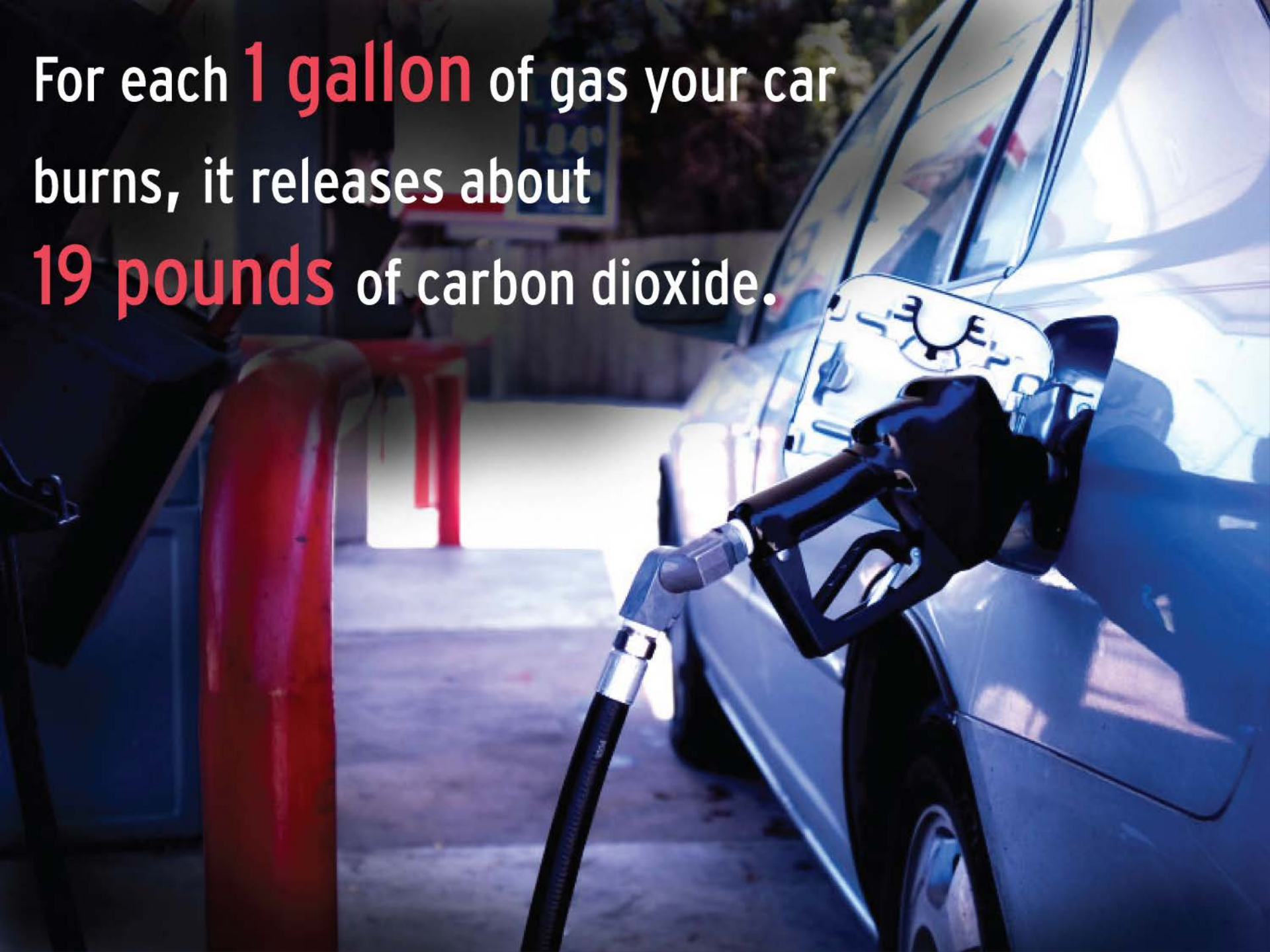
New York

Denver

San Francisco

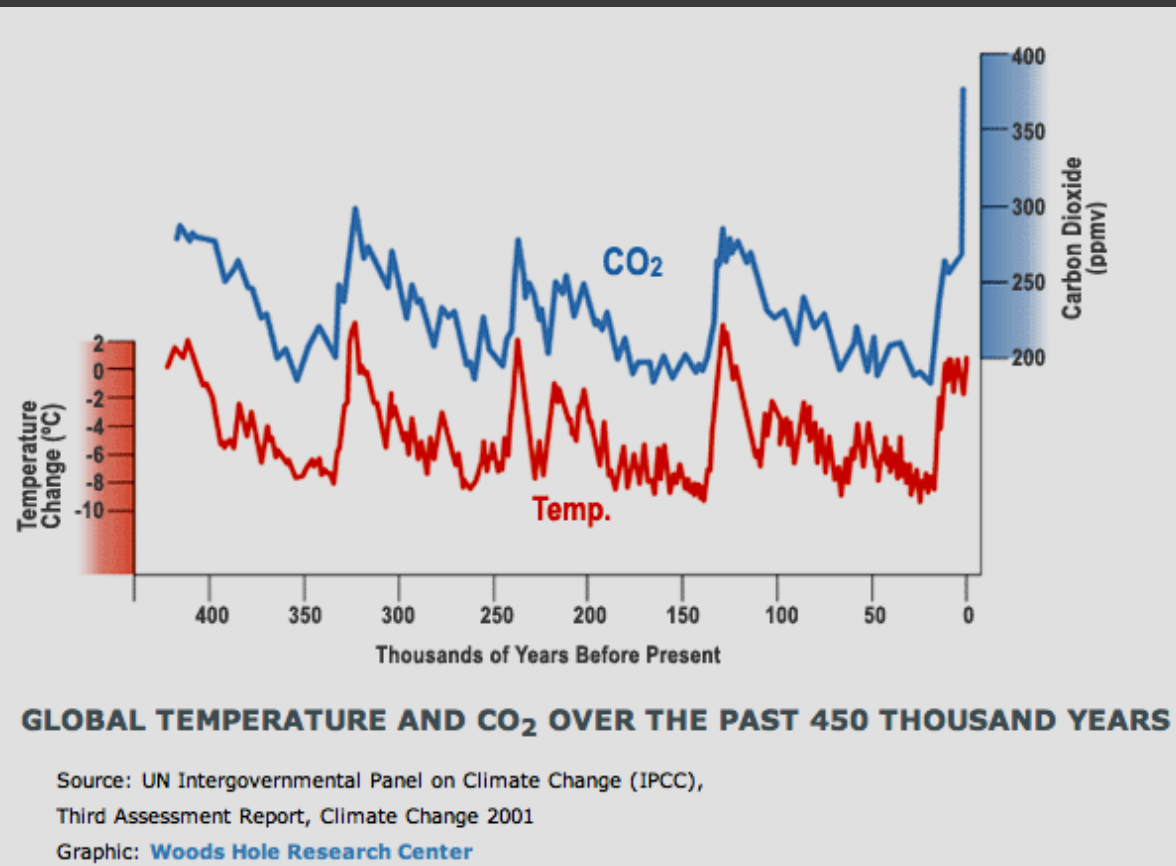
= 47%

For each **1 gallon** of gas your car
burns, it releases about
19 pounds of carbon dioxide.



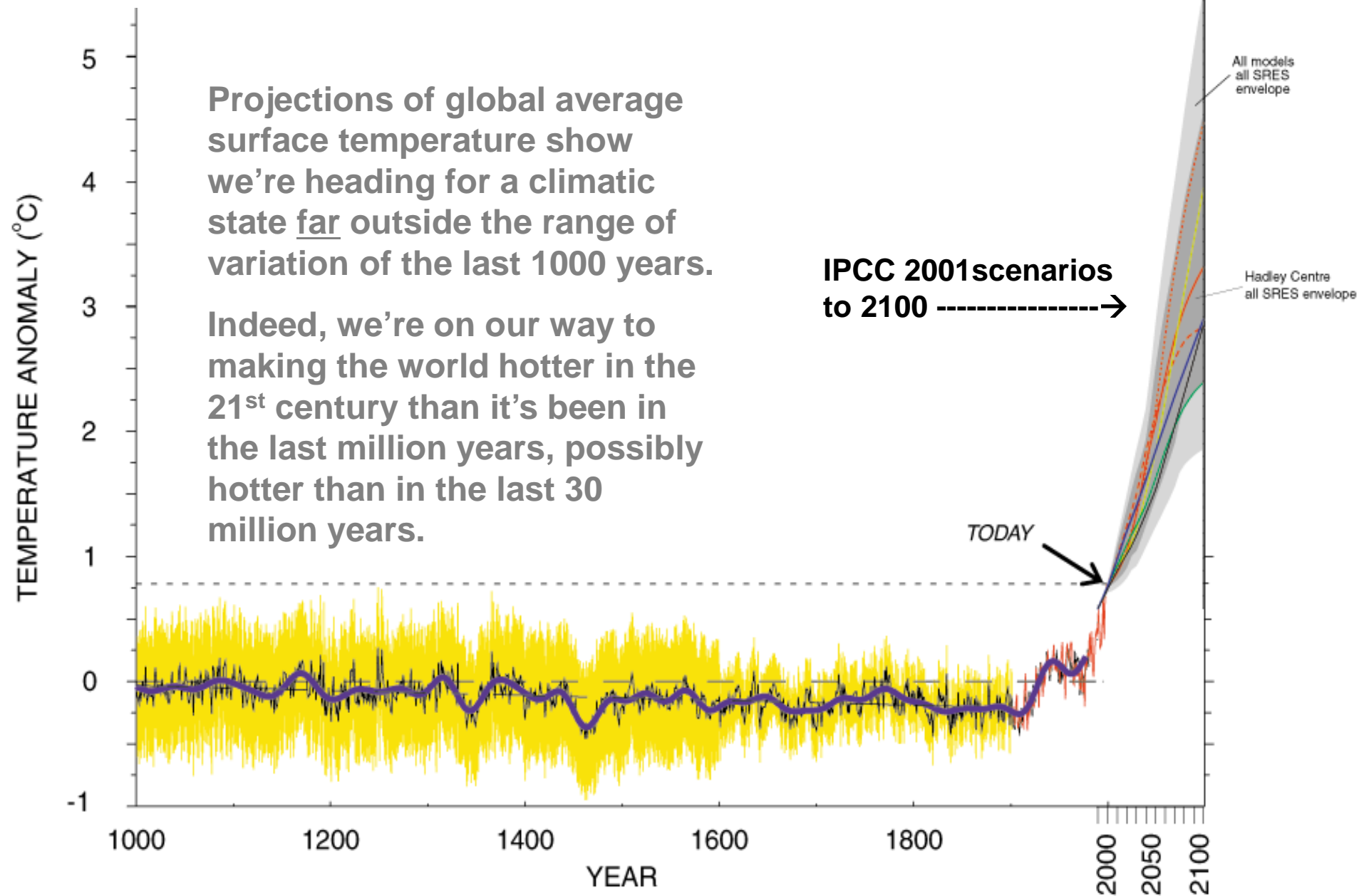
“This disaster is not set to happen in some science fiction future many years ahead, but in our lifetime. Unless we act now. . . these consequences, disastrous as they are, will be irreversible.”

- Tony Blair, 2006

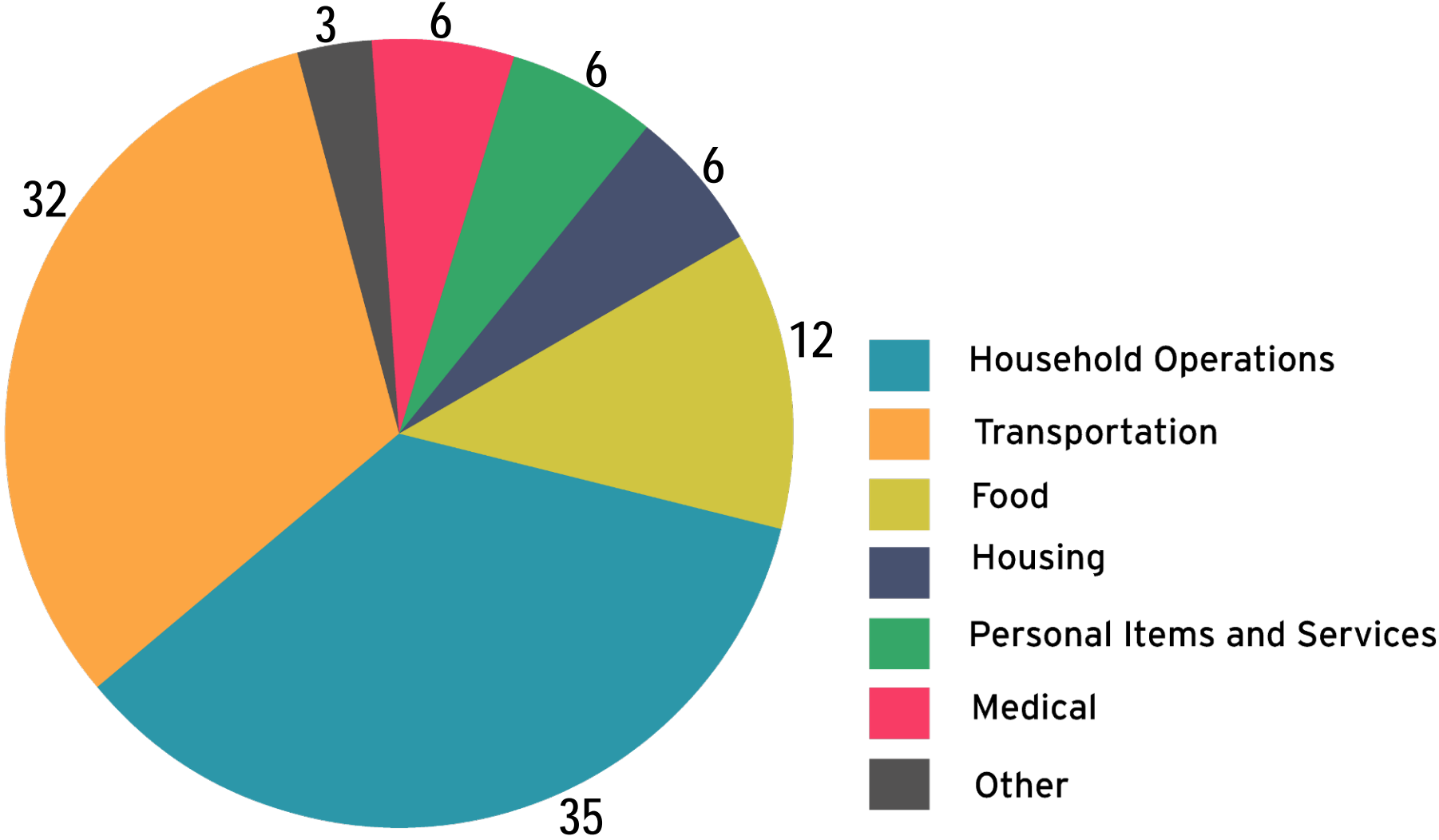


Where are we headed?

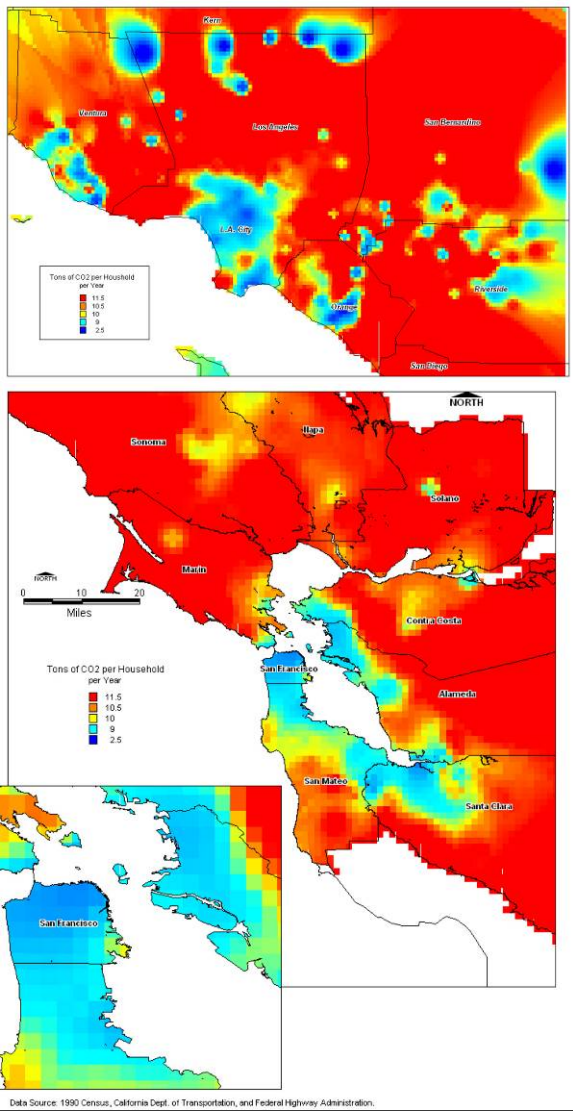
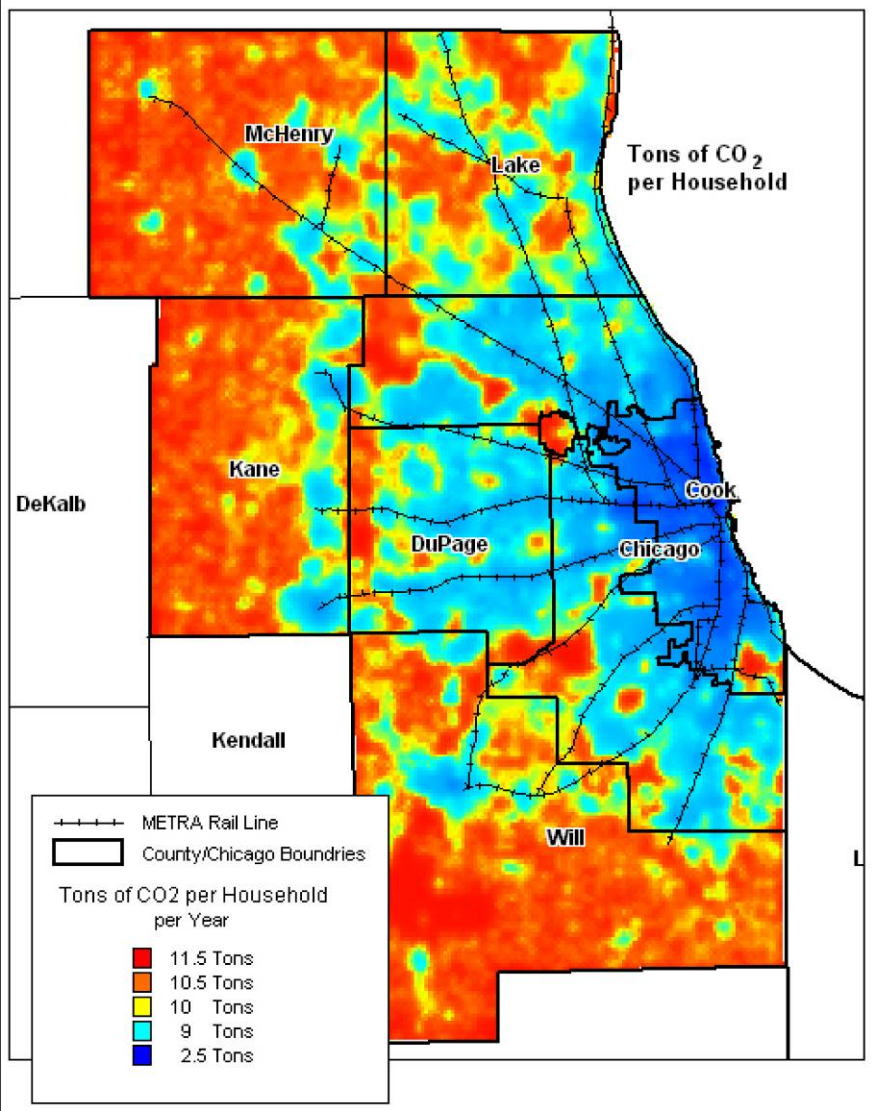
The next 100 years compared to the last 1000



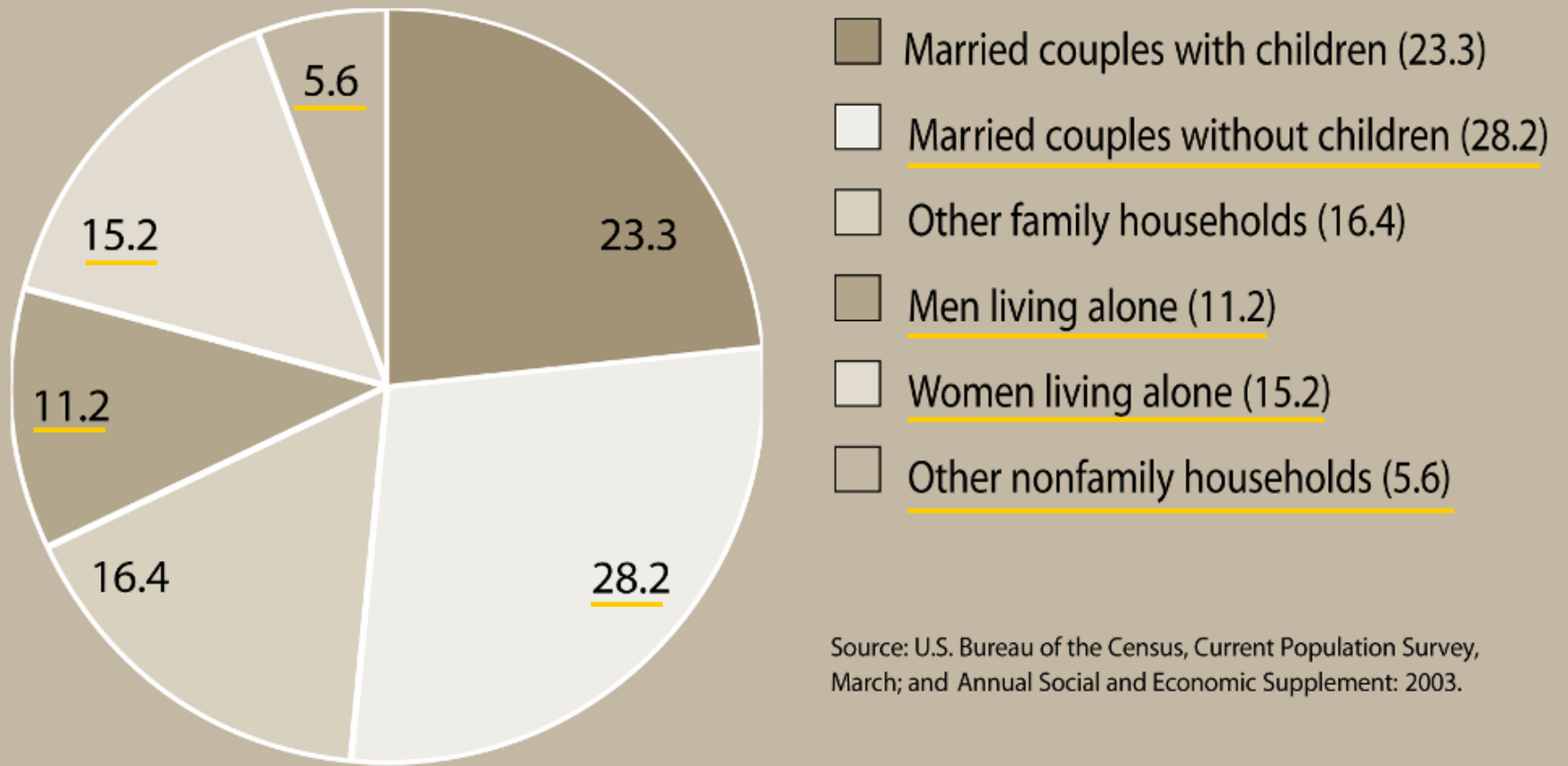
Greenhouse Gas Emissions per Household



Carbon Footprint



HOUSEHOLDS BY TYPE: 2003 (PERCENTAGE OF TOTAL)



Source: U.S. Bureau of the Census, Current Population Survey, March; and Annual Social and Economic Supplement: 2003.



60.2 %



39.7%



If everyone lived like an American, we would need almost

6 planets to support life.



Fig. 2: HUMANITY'S ECOLOGICAL FOOTPRINT, 1961-2001

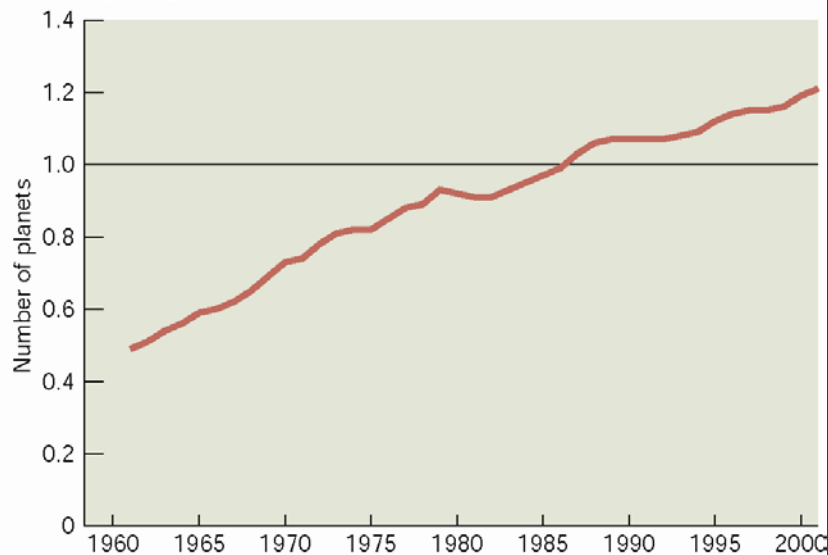
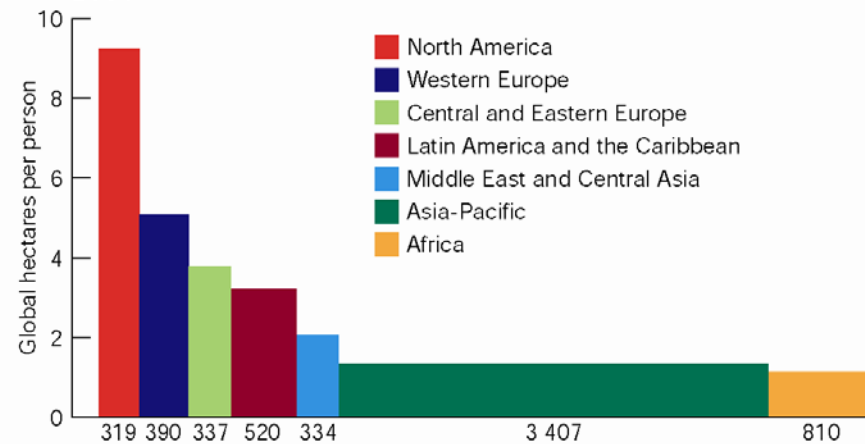


Fig. 17: ECOLOGICAL FOOTPRINT BY REGION, 2001



Increase in LEED Projects in three years.

2002:
More than
80 million
square feet.

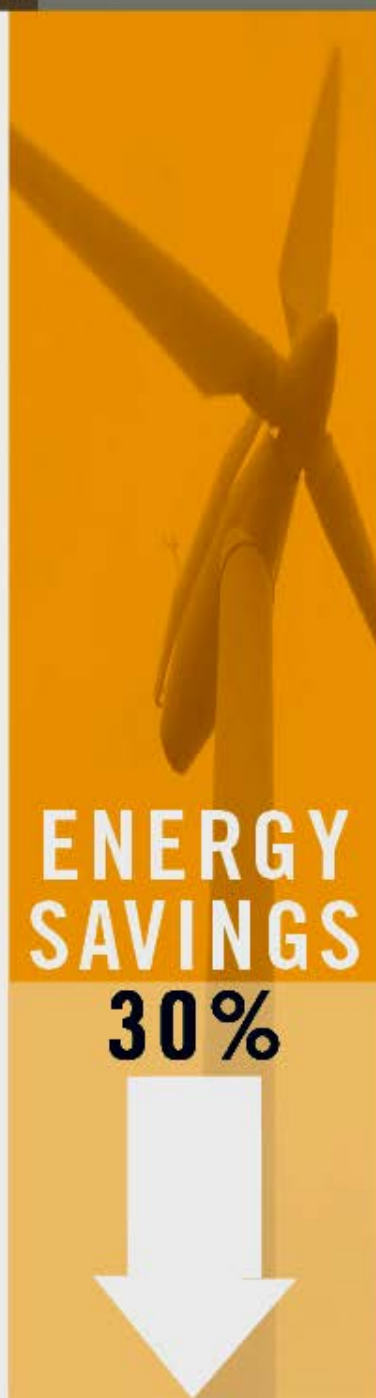
2003:
More than
141 million
square feet.

2004:
More than
180 million
square feet.

2005:
More than
500 million
square feet.



Average Savings of Green Buildings



Source:
Capital E

**Increased
Productivity.**

SCHOOLS

**20%
BETTER TEST
PERFORMANCE**

HOSPITALS

**2 1/2 DAY
EARLIER
DISCHARGE**

RETAIL

**INCREASE
IN SALES
PER SQUARE
FOOT**

FACTORIES

**INCREASED
PRODUCTION**

OFFICES

**2-16%
PRODUCTIVITY
INCREASE**

An aerial photograph of a large, rectangular green wall, possibly a living wall or a field of low-lying plants. The wall is divided into a grid pattern by white lines, creating a stylized representation of the United States flag. The top and bottom sections are dark green, while the middle section is a lighter green with white flowers or plants interspersed. The overall effect is a dense, textured surface that mimics the colors and layout of the flag.

The New York Times Magazine

The Greening of Geopolitics

Corporate Commitments and Results



10% reduction
\$650 million saved



69% reduction
\$2 billion saved



10% reduction
"It's made us
more competitive"



5% reduction



Absolute cap



10% reduction



35% reduction
\$200 million saved



19% reduction



6% reduction



65% reduction
\$791 million saved



72% reduction



ALCOA

25% reduction
\$100 million saved



37% reduction



13% reduction



1% reduction

\$1.5 billion clean tech R&D



9% reduction



17% reduction



25% reduction

LEED Companies Financial Performance

Comparison of Publicly Traded
USGBC Weighted by Market Cap
vs. Market Averages

Graphic originated by US Green Building Council





HEAR THAT? IT'S THE GROUND WHIMPERING.

CHEVY™ KODIAK®. STRONG. TOUGH. DURABLE.

The sound of crunching dirt and gravel says it all. The Chevy Kodiak is relentless — with a choice of powerful gas and diesel engines and a complete line of manual and automatic transmissions. And as if that weren't enough, Kodiak offers a range of GVWRs from 16,000 lbs to 61,000 lbs.* From the sounds of it, the Chevy Kodiak will be intimidating job sites for years to come.

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AND CIVILIZATION CRUMBLES,
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HUMMER.COM

MSRP \$48,800. Tax, title, license and optional equipment extra. *1800L/REAL-4WD © General Motors Corp., 2002. HUMMER and the vehicle's grille design are registered trademarks of GM Corp. Partner of Tread Lightly®, Inc.

more green for less green.



PRIUS LEASE

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\$1968 DUE AT SIGNING.
On approved credit.

Includes security deposit but not applicable taxes and fees.

OR
UP TO **\$2000** TAX DEDUCTION²



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It runs up to 90% cleaner for smog-forming emissions than most vehicles. It gets up to 52 miles per gallon and 566 miles per tank.³ And now, it comes with two more ways to save. The gas and electric Toyota Prius. The car that makes an environmental statement without hurting your bank statement. Visit your local Toyota dealer for a test-drive today.

GET THE

Only a limited number of customers will qualify for the advertised terms. See your participating Toyota dealer for lease program qualifications. 2002 Prius with cruise control, floor mats and Daytime Running Lights, plus delivery, processing and handling fee. A total of \$1,968 will be due at signing: month's payment, \$999 down payment, \$300 security deposit and \$400 acquisition fee. Your payment may vary depending on your final price. 36 monthly payments will total \$9,864. Your lease-end purchase option will be \$11,847, plus taxes and fees. Lease includes complimentary roadside assistance, tire and wheel maintenance. You pay for excess wear and tear above \$0.15 per mile over 12,000 miles per year. To qualified customers through Toyota Financial Services and participating Toyota dealers. Similar offer through Southern Toyota Finance. Not available in Hawaii. Must take delivery by 10/31/02. dated May 21, 2002. One-time federal tax deduction available to owners of Prius. Must be claimed in the first year of use. See your tax advisor for details. 2002 EPA estimated 52/45/48 city/highway/combined mpg. Actual mileage may vary. Based on EPA estimated city driving. ©2002 Toyota Motor Sales, U.S.A., Inc.

You look smart.
You should drive a Prius.

TOYOTA PRIUS | genius



Smart drivers know the Prius can cover up to 566 miles on one tank of gas. Smart drivers know the Prius emits up to 90% fewer smog-forming emissions than the average new vehicle.

Smart drivers know smart drivers, drive a Prius.



To find out more about the Prius visit www.toyota.com/priuscard or call 1-800-GO-TOYOTA.



NEW LEVI'S® ECO JEANS. 100% ORGANIC COTTON.

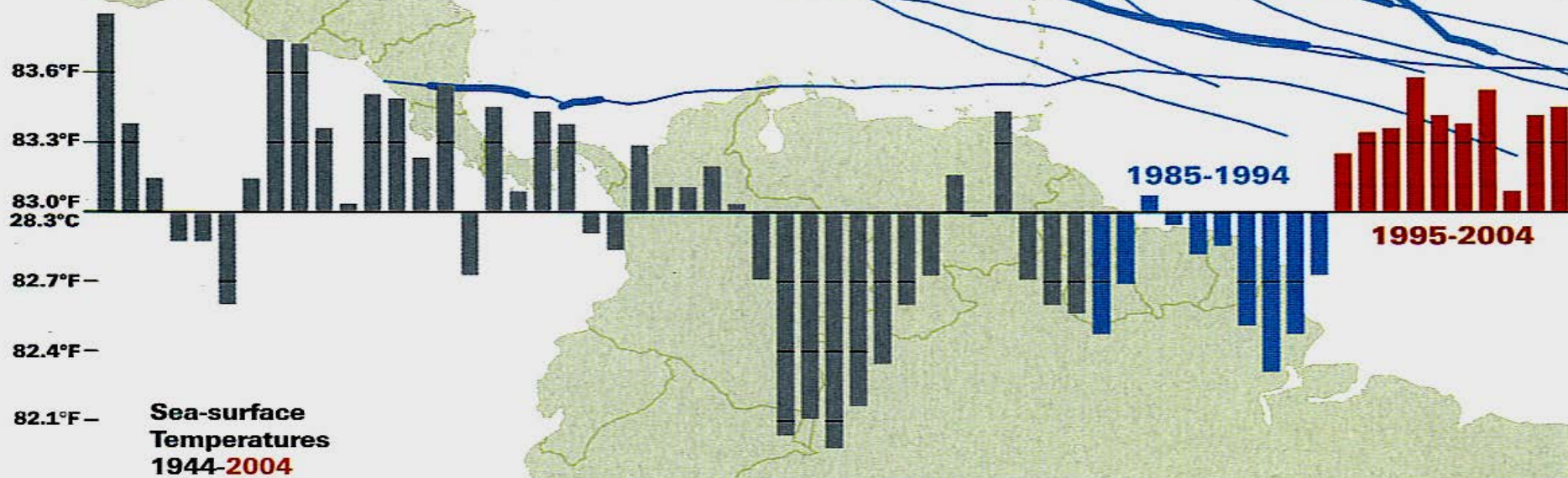
LEVI'S® STORE AND LevisStore.com



Levi's

Hurricane Tracks

When sea-surface temperatures
were cooler (1985-1994)



**Now that they're warmer
(1995-August 2005)**



Storm paths

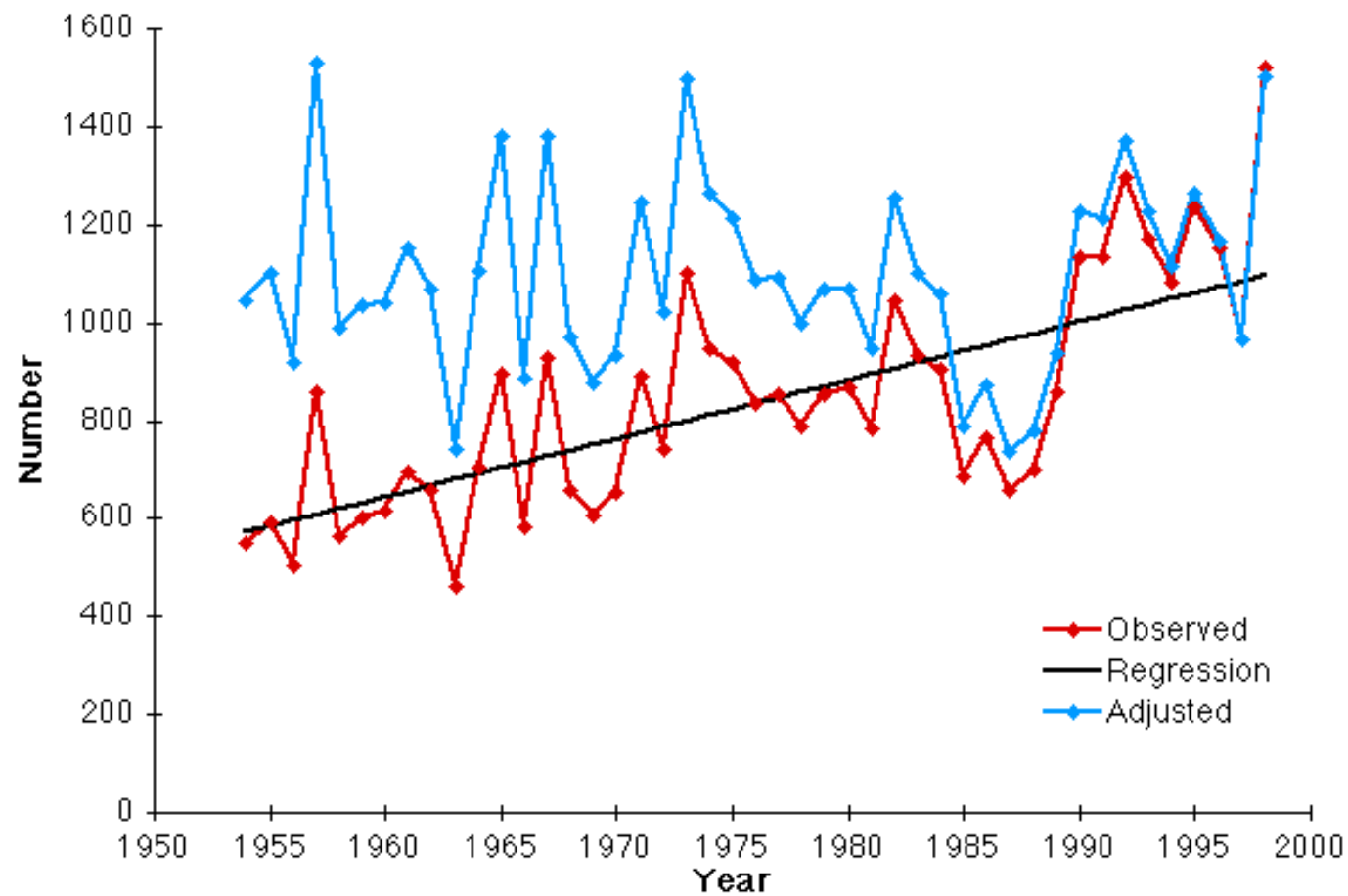
Lower intensity storm Category 3-5 hurricane

Hurricane Katrina shown black

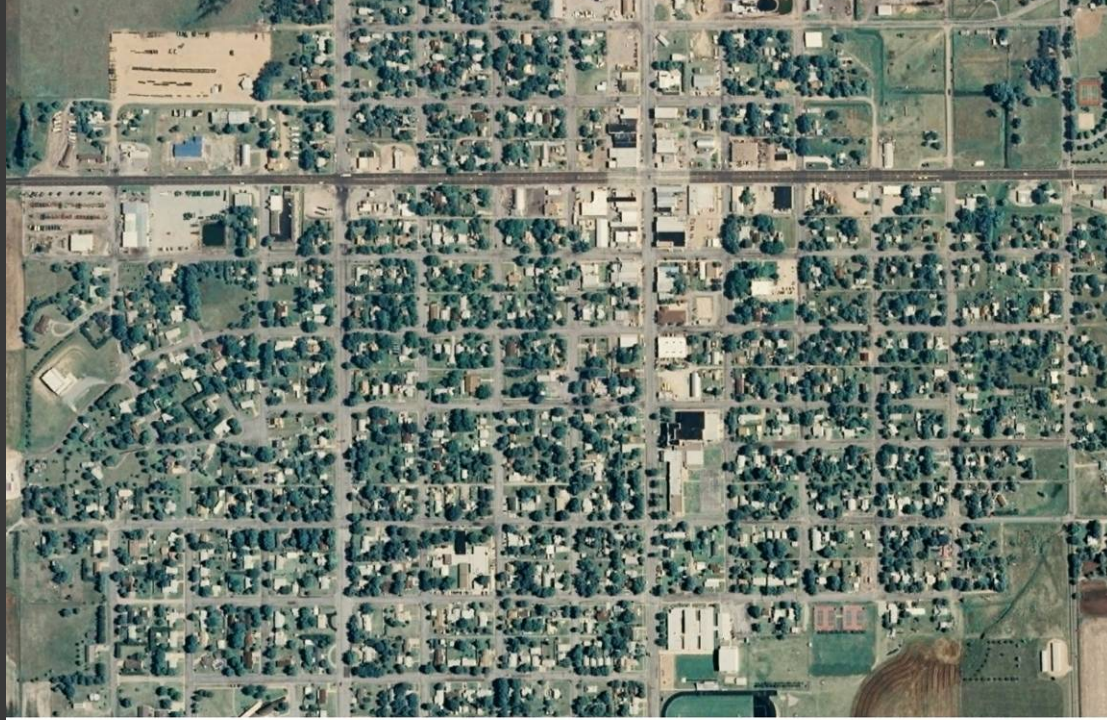




Tornadoes by Year (U.S.)



NOAA data







2
53





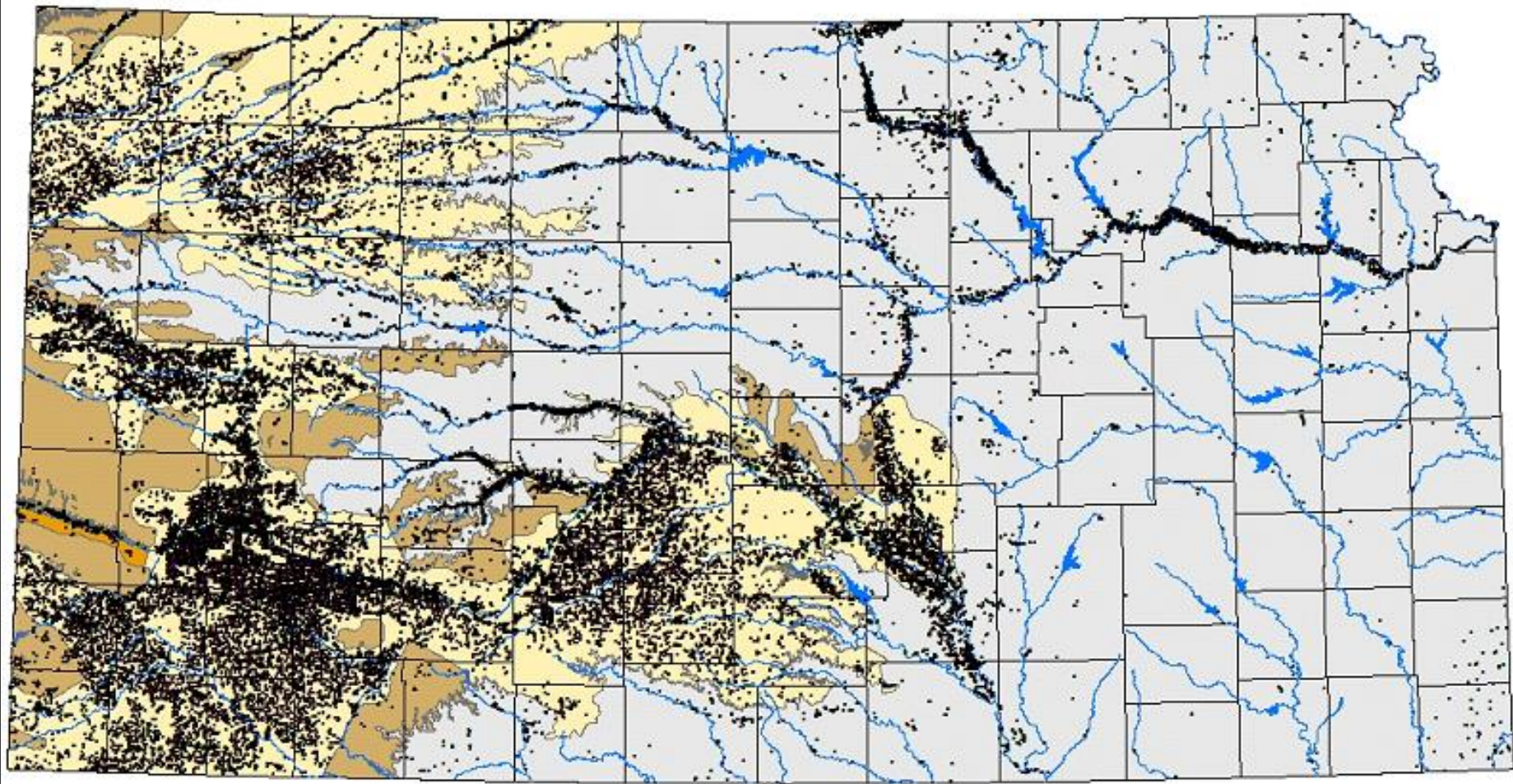


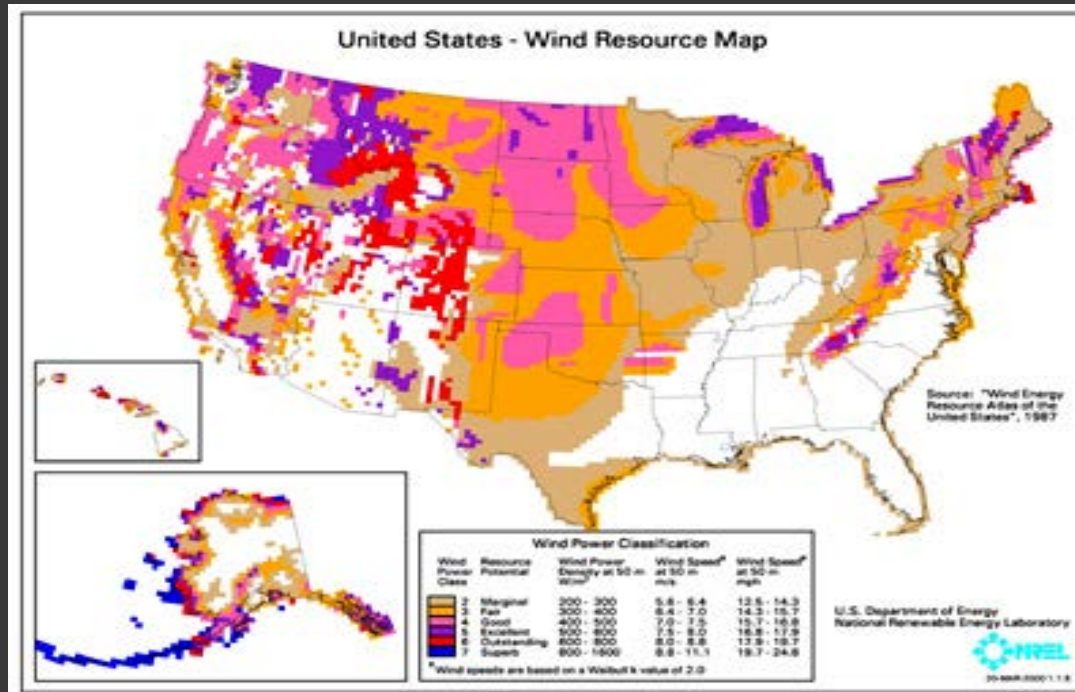


MIDAMERICAN
COMMERCIAL BANK
Member FDIC
Member SBA
Member NCUA

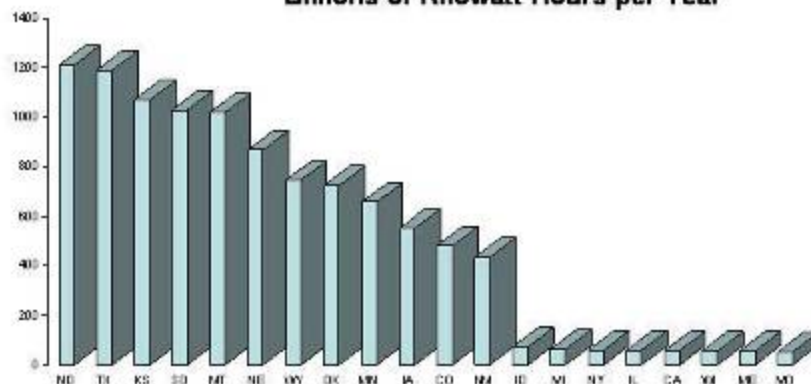
H&R BLOCK

THE PEOPLES BANK



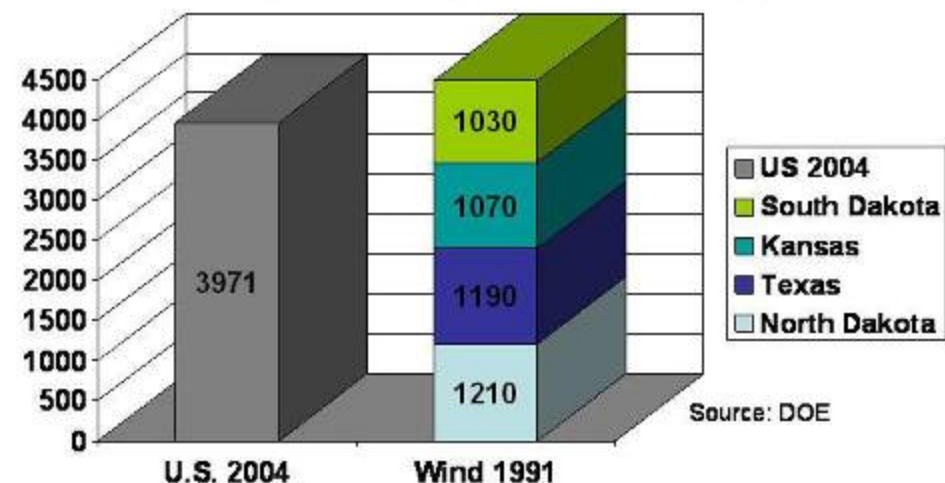


Top Twenty States Potential Wind Energy
in
Billions of Kilowatt Hours per Year



Source: Dept. of Energy, Pacific Northwest Laboratory, August 1991. PNL-7789

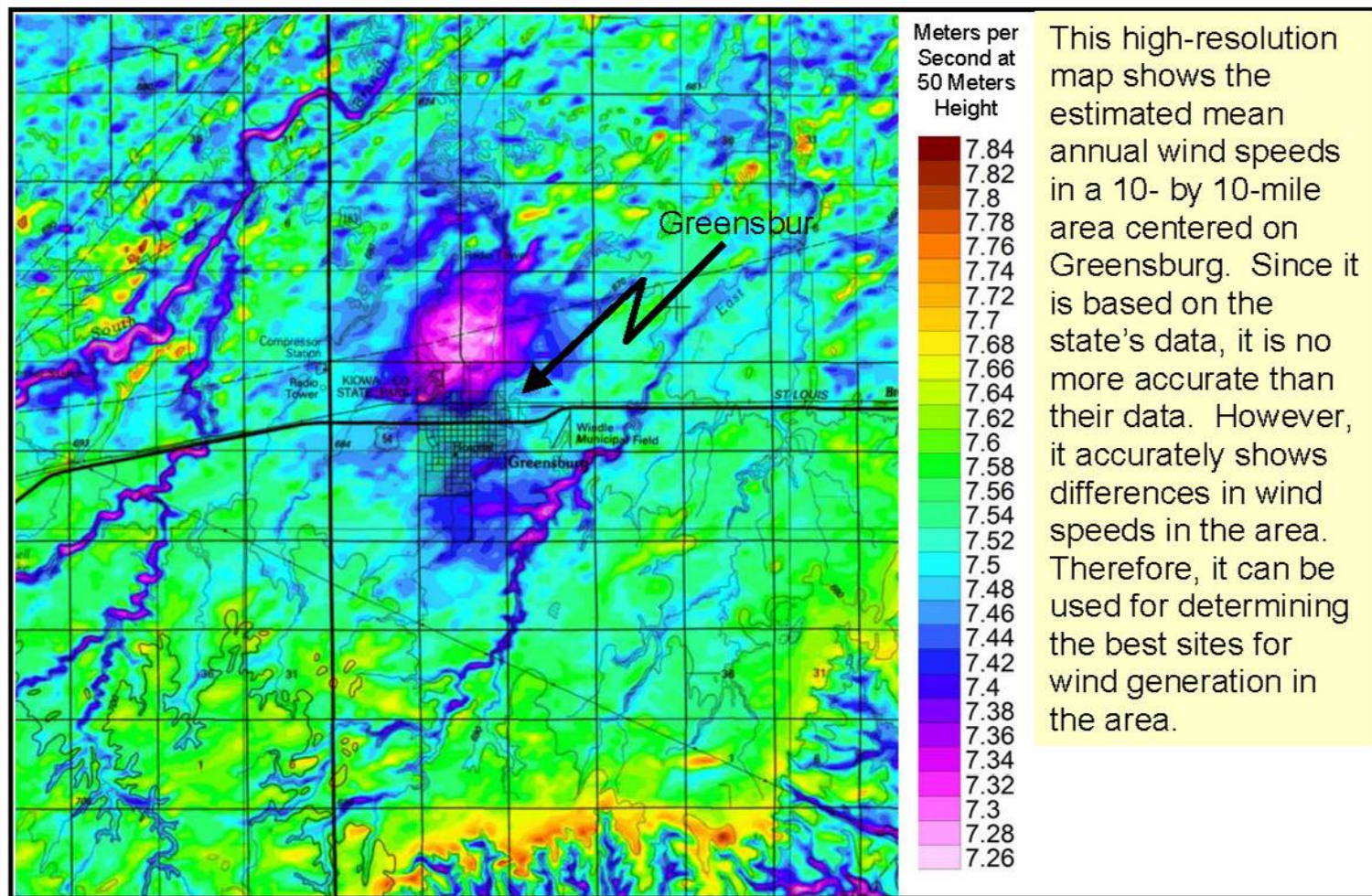
Comparing U.S. Net Generation from all sources 2004 and
Top 4 States Wind Energy Potential with 1991 Technology



U.S. Net Generation in 2004 from all sources = 3971 billion kilowatt hours

Top Four States total wind potential in 1991 = 4500 billion kilowatt hours



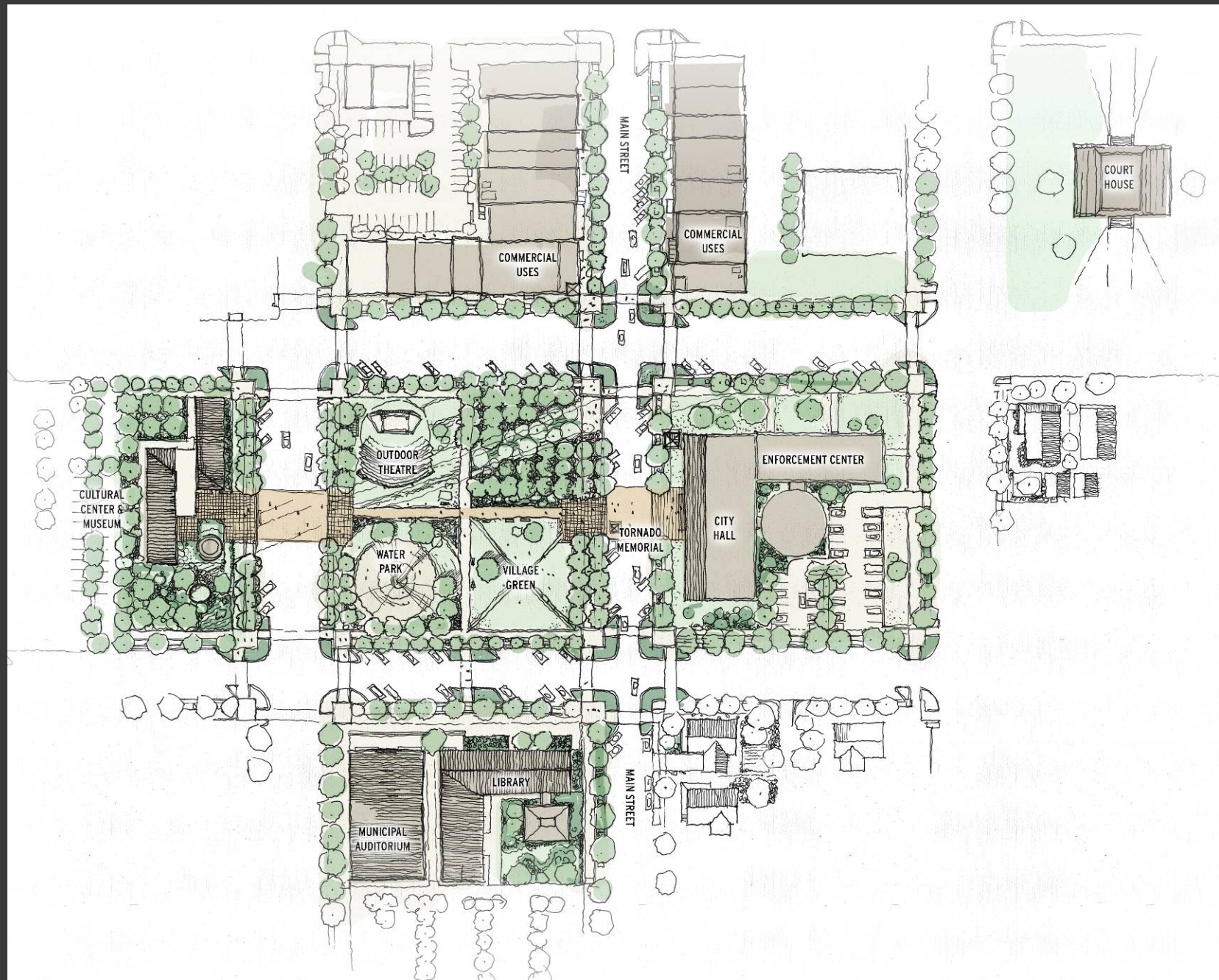


**Wind Speed Map
around Greensburg, Kansas**

Map is based on the Kansas Corporation Commission 1,000-meter resolution wind speed database.

Wind Utility Consulting, PC







GREENSBURG VISION

BLESSED WITH A UNIQUE OPPORTUNITY TO CREATE A STRONG COMMUNITY DEVOTED TO FAMILY, FOSTERING BUSINESS, WORKING TOGETHER FOR FUTURE GROWTH.

COMMUNITY

A PROGRESSIVE COMMUNITY THAT OFFERS URBAN SERVICES WITHIN THE UNASSUMING FEEL OF A RURAL, MIDWESTERN COMMUNITY.

FAMILY

A COMMUNITY THAT PROVIDES OPPORTUNITIES FOR ITS YOUNG PEOPLE IN THE WAY OF JOBS, EDUCATION AND RECREATION AS REASONS TO STAY IN GREENSBURG.

PROSPERITY

A COMMUNITY WHERE ENTREPRENEURIAL SPIRIT, CUSTOMER SERVICE, AND A SUSTAINABLE ECONOMY PERMEATE THE BUSINESS SECTOR AND WHERE RESIDENTS, TRAVELERS, AND TOURISTS ENJOY A FULL LINE OF LOCALLY OWNED BUSINESSES THAT PROVIDE JOBS AND SERVICES TO AN EXCEPTIONAL EXAMPLE OF SMALL-TOWN AMERICA.

ENVIRONMENT

A COMMUNITY THAT RECOGNIZES THE IMPORTANCE OF THE NATURAL ENVIRONMENT AND BALANCES THE NEED FOR GROWTH AND ECONOMIC DEVELOPMENT WITH THE MAINTENANCE AND IMPROVEMENT OF THE ENVIRONMENT.

AFFORDABILITY

AN UP-TO-DATE, AFFORDABLE RURAL COMMUNITY WHERE HOUSING PLANS AND STRATEGIES INCORPORATE ENERGY-EFFICIENT DESIGN AND MATERIALS AND SERVE AS A REGIONAL AND NATIONAL MODEL FOR INTEGRATING RESIDENTS OF ALL AGES AND NEEDS WITH SERVICES OF ALL KINDS.

GROWTH

A COMMUNITY THAT OPENS ITS DOORS TO NEW RESIDENTS AND VISITORS WITHOUT AFFECTING THE VALUES AND LIFESTYLES OF ITS CURRENT RESIDENTS.

RENEWAL

MAKE PROACTIVE DECISIONS THAT USE THIS OPPORTUNITY TO REVERSE THE DECLINE OF THE COMMUNITY AND BUILD A PROGRESSIVE CITY WITH A STRONG FUTURE.



The Next Big Environmental David-and-Goliath Trial by William Langewiesche P. 228

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OUR 2ND ANNUAL

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"The conservation of
natural resources is the fundamental problem.
Unless we solve that problem, it
will eat us alive, to ruin all others."
—THEODORE ROOSEVELT

For more pictures and video
of Khat, the three-month-old
polar-bear cub, go to VF.com.



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THE PRIVATE-EQUITY EXPLOSION
THE KISSINGER PRESIDENCY



CITIES LEADING THE WAY



June 13, 2005

the mayors climate protection agreement was passed unanimously by the U.S. Conference of Mayors.

October 12, 2007

691 mayors, representing over 74 million Americans, have accepted the challenge.









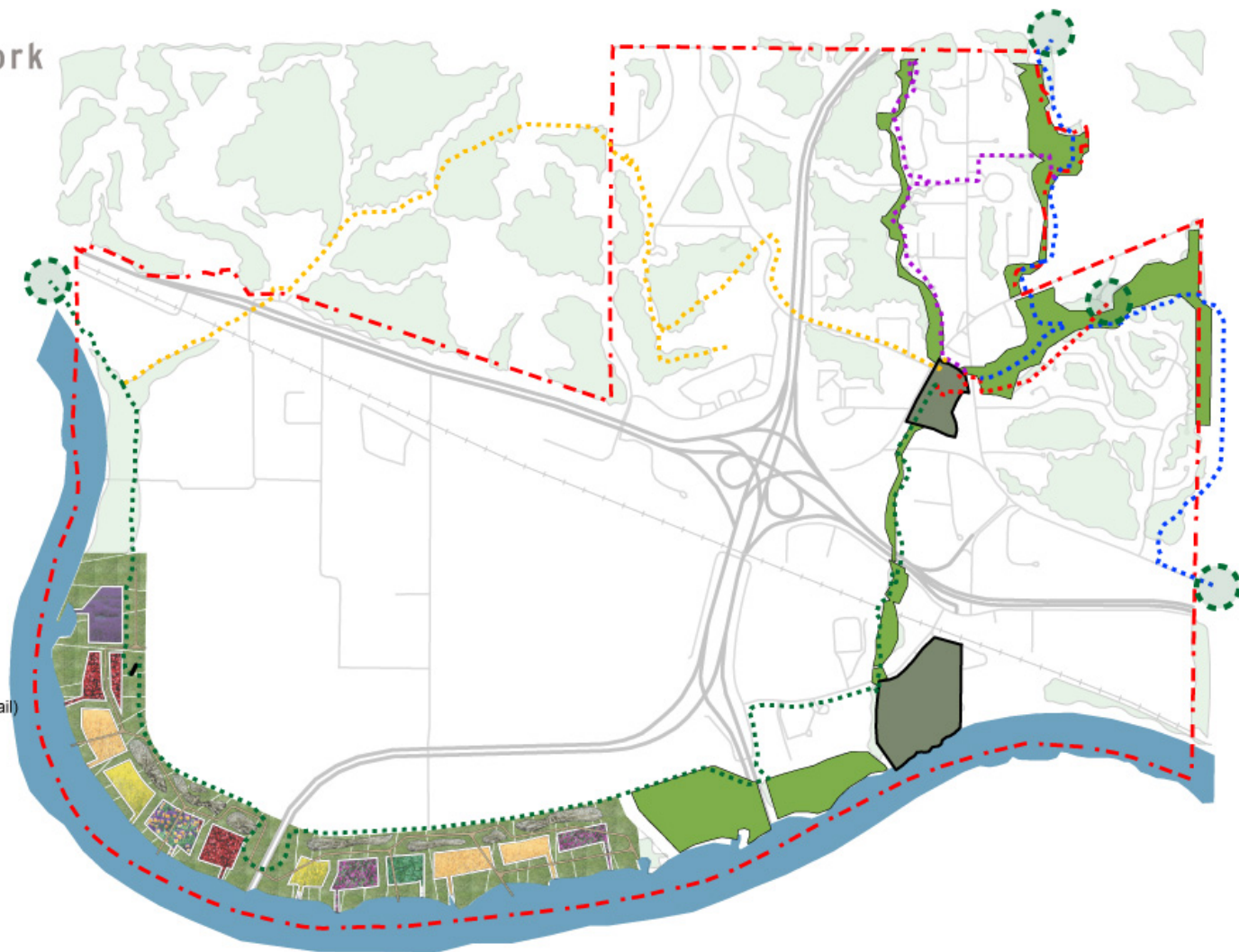


Proposed Natural Network

Legend

- City Boundary
- Proposed Trail (West Loop)
- Proposed Trail (Jumping Branch)
- Proposed Trail (Line Creek)
- Proposed Trail (InterUrban)
- Proposed Trail (Lower Line Creek / Levee Trail)
- Existing Vegetation
- Proposed Natural Network
- Existing Parks
- Missouri River & Streams
- Metro Green Connection

0 750 1500 3,000 4,500
Feet





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Image © 2006 Sanborn

© 2005

Google

Pointer 39°06'34.86" N 94°35'03.08" W elev 822 ft

Streaming ||||| 100%

Eye alt 2322 ft

Columbus Park

Berkely Park

MAX BRT

1/4 Mile Walking Radius

Strong Connections

Reconnect to the Missouri River



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Image © 2006 Sanborn

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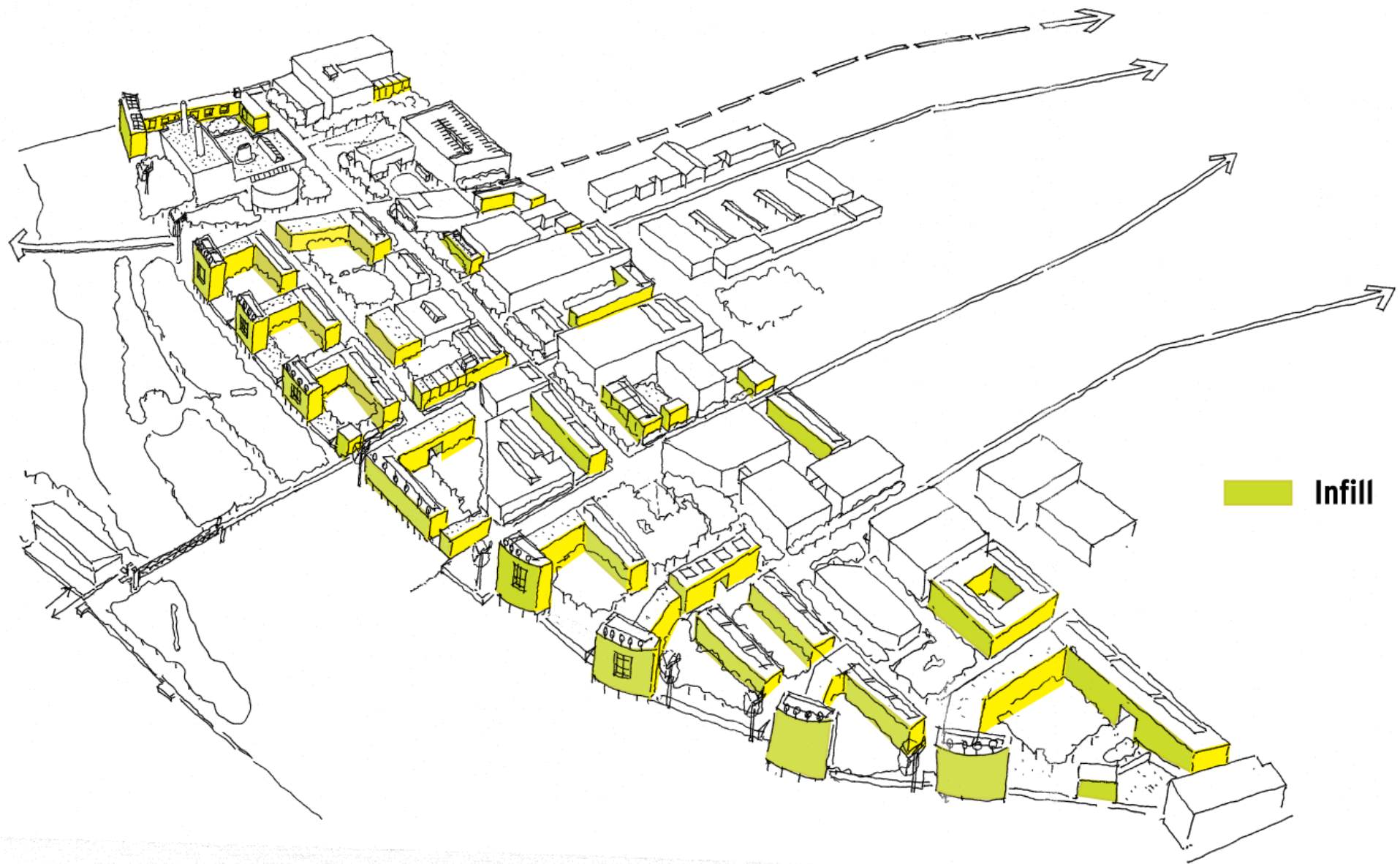
Google

Eye alt 2322 ft

Pointer 39°06'34.86" N 94°35'03.08" W elev 822 ft

Streaming 100%







School, Cultural Center, Community Center

Transit Hub

**Harness
Wind
Energy**

Compact Housing

**Tree-lined Avenue
Row House Infill**

**Heat
Transfer
Station**

Arts Incubator

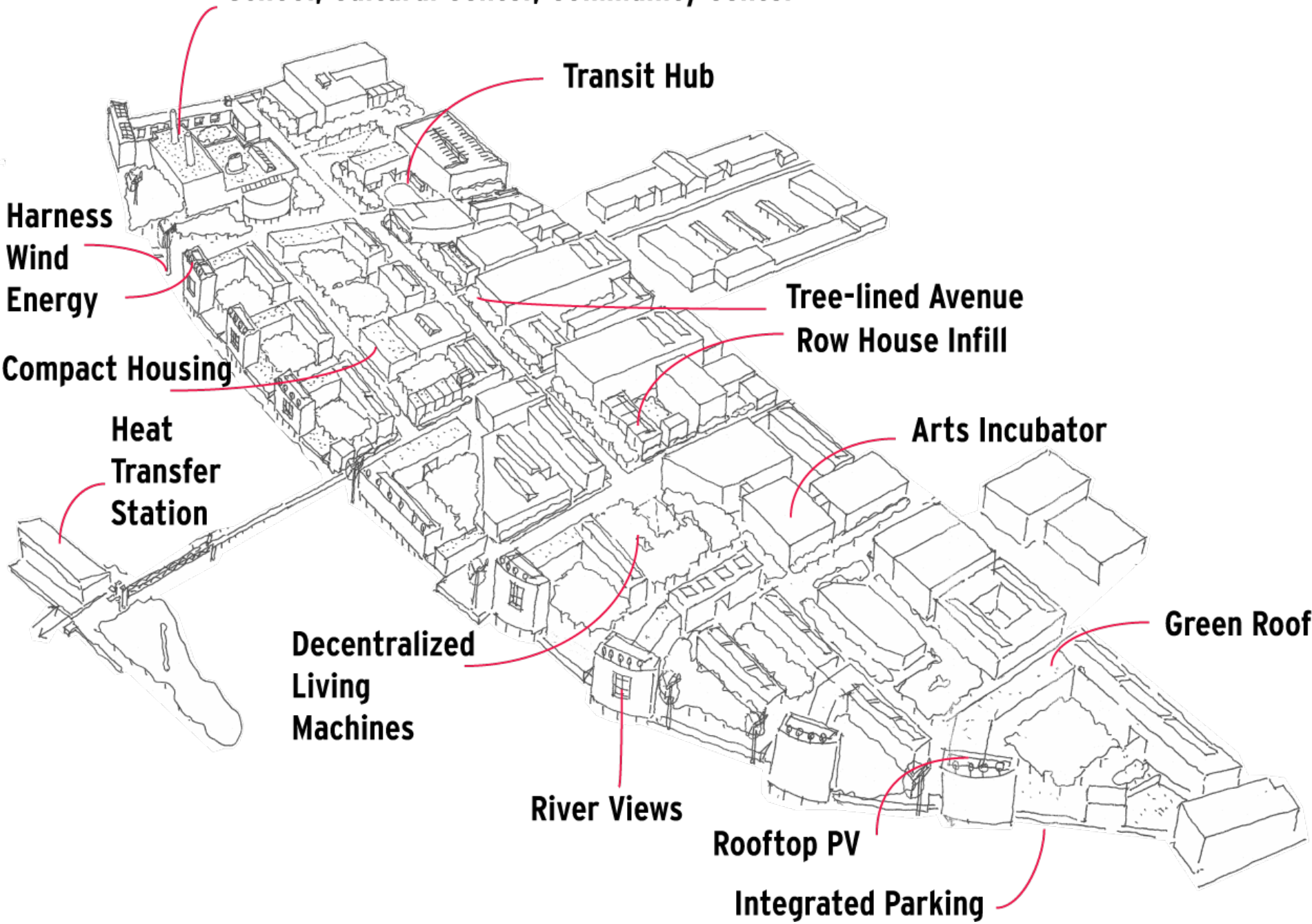
**Decentralized
Living
Machines**

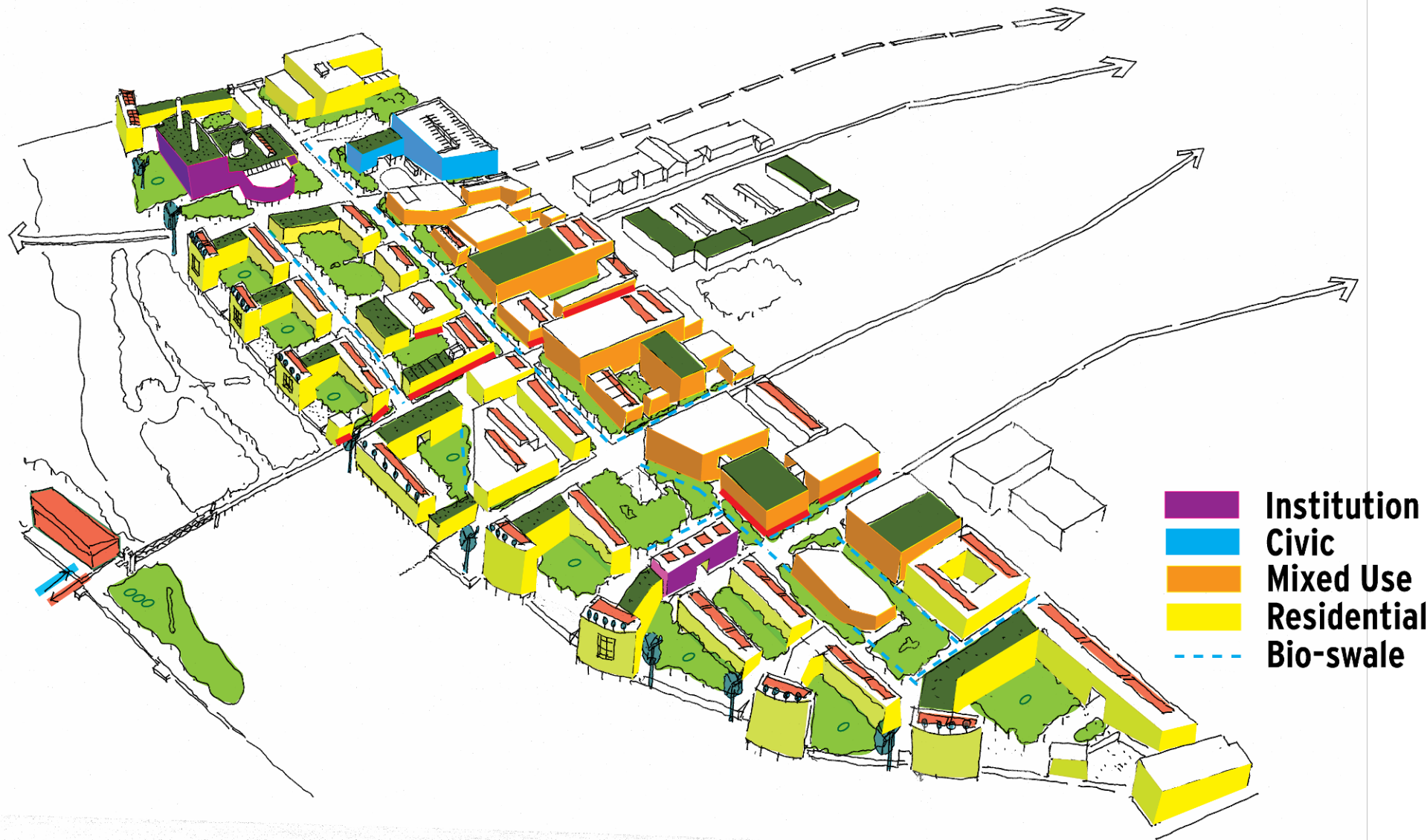
Green Roof

River Views

Rooftop PV

Integrated Parking







© 2006 Sanborn

Image © 2006 Sanborn

© 2005

Google

Pointer 39°06'34.86" N 94°35'03.08" W elev 822 ft

Streaming ||||| 100%

Eye alt 2322 ft

“The future belongs to those who give the next generation reason to hope.”

-Teilhard de Chardin





QUESTIONS?