

James Wilson

Executive Director | Bike Delaware

Air Conditioning and U.S. Pedestrian Fatalities

The surprising connection between air conditioning and America's crisis of pedestrian fatalities

2008-2017



The Ten Deadliest U.S. States for Pedestrians

Why were they (almost!) all in the South?

Insane Theory: Air Conditioning
(Somehow?) Causes Pedestrian
Fatalities



PHOENIX



PLANO



The “South” Is Not a Monolith

Phoenix, Arizona and Plano, Texas could not be more different for pedestrian fatality rates

2008-2017



But **Something** is Happening in the South

It's not plausible that 9 of the 10 deadliest states for pedestrians in the U.S. just *happen* to be in the South

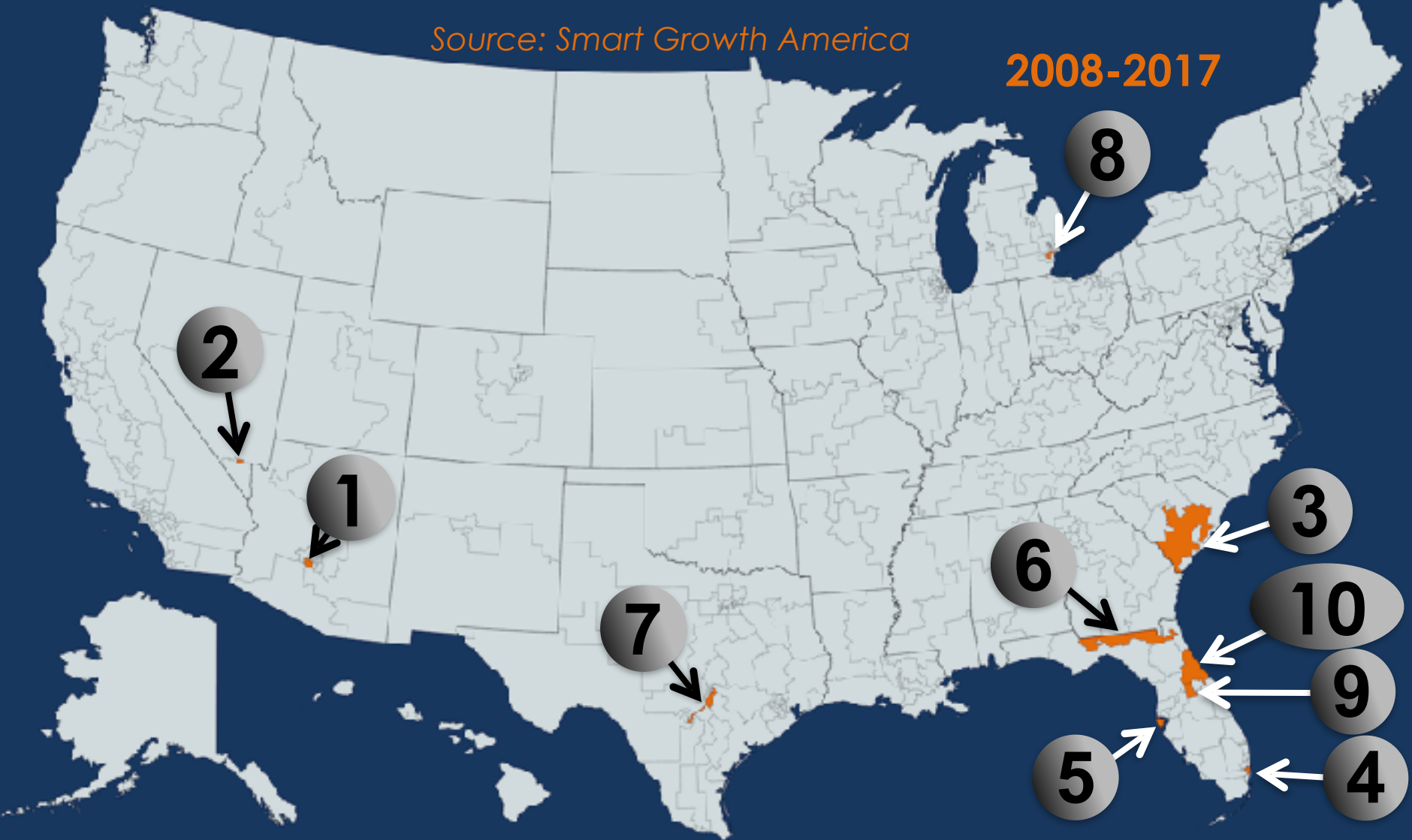


What if we looked at congressional districts?

Each district has the same number of people (~700,000)

Source: Smart Growth America

2008-2017



Ten Deadliest Congressional Districts for Pedestrians

Again: still (almost) all in the South

But now we have a richer data set
we can look at...

10 Deadliest Congressional Districts

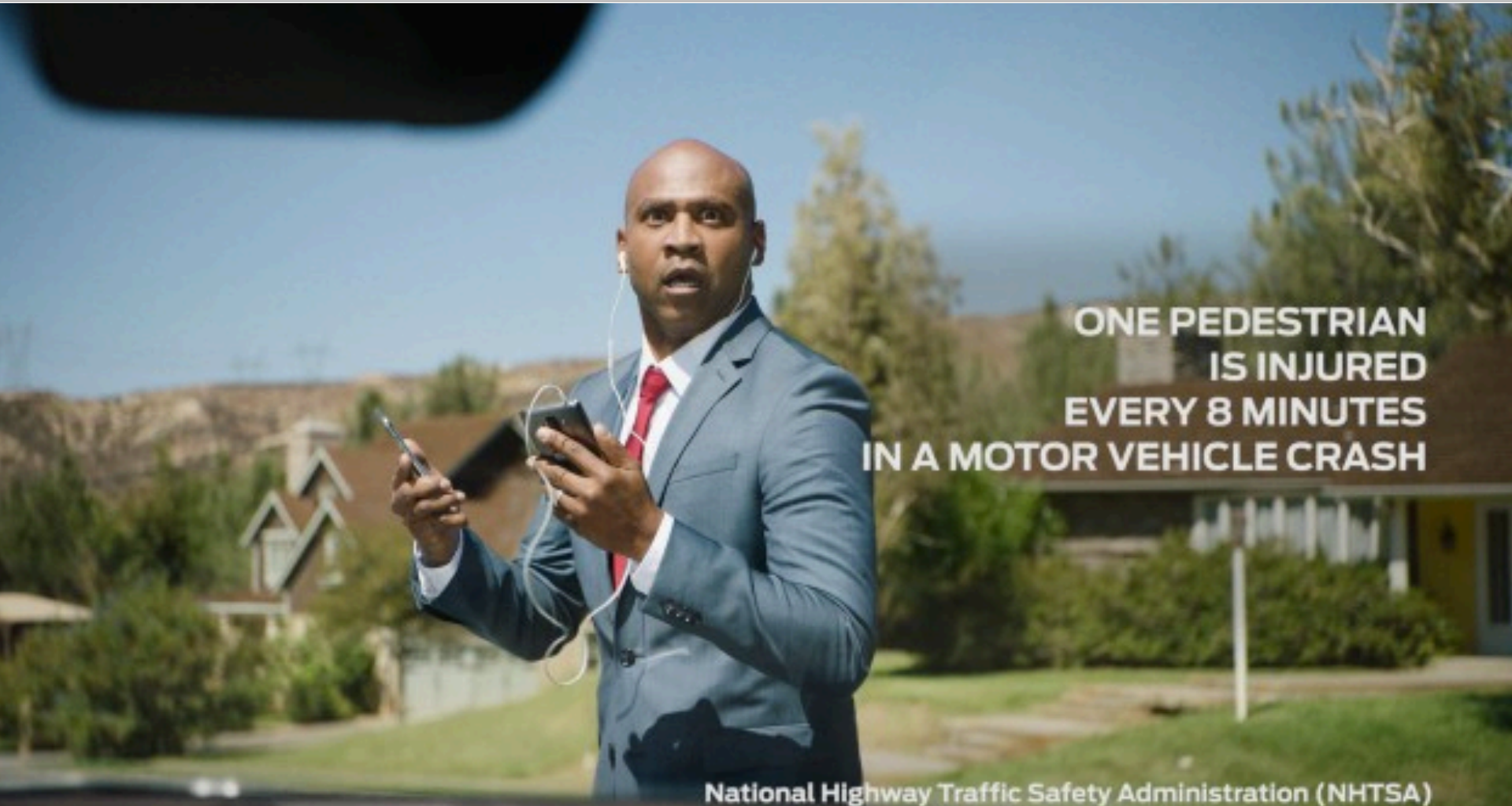
	District	Area(s)	Annual Fatal Crash Rate
1	Arizona 7th	West and South Phoenix	4.5
2	Nevada 1st	Las Vegas and south suburbs	4.2
3	South Carolina 6th	Parts of Charleston and Columbia and rural areas in-between	4.1
4	Florida 24th	Northern suburbs of Miami	4.0
5	Florida 13th	Clearwater and St. Petersburg	3.9
6	Florida 5th	Tallahassee-to-Jacksonville	3.8
7	Texas 35th	San Antonio-to-Austin	3.6
8	Michigan 13th	Detroit plus some western suburbs	3.4
9	Florida 10th	Northern, western and southern suburbs of Orlando	3.4
10	Florida 6th	South Jacksonville suburbs to North Orlando suburbs	3.4

10 Deadliest Congressional Districts

	District	Area(s)	Fatal Crash Rate
1	Arizona 7th	West and South Phoenix	4.5
2	Nevada 1st	Las Vegas and south suburbs	4.2
3	South Carolina 6th	Parts of Charleston and Columbia and rural areas in-between	4.1
4	Florida 24th	North suburbs of Miami	4.0
5	Florida 13th	Clearwater and St. Petersburg	3.9
6	Florida 5th	Tallahassee-to-Jacksonville	3.8
7	Texas 35th	San Antonio-to-Austin	3.6
8	Michigan 13th	Detroit plus some west suburbs	3.4
9	Florida 10th	North, west and south suburbs of Orlando	3.4
10	Florida 6th	South Jacksonville suburbs to North Orlando suburbs	3.4
U.S. Average			1.6
435	Texas 3rd	Northeast Dallas suburbs (Plano)	0.4

What could cause one area of the
country to have an
ORDER OF MAGNITUDE
more pedestrian fatal crashes per
capita?

Distracted pedestrians?



It is not a plausible theory that Phoenix has **10 times** as many distracted pedestrians as Plano.

The magnitude of the effect makes this highly unlikely as an explanation.

Distracted drivers?



It is not a plausible theory that Phoenix has **10 times** as many distracted drivers as Plano.

Again: the magnitude of the effect makes this highly unlikely as an explanation.

SUVs and Trucks?



It is not a plausible theory that Phoenix has **10 times** as many SUVs and trucks as Plano.

We need some new ideas for explanations.

~~Distracted Driving~~

~~Distracted Pedestrians~~

~~More Large Vehicles~~

[Putting implausible theories to the side] what could cause one area of the country to have an ORDER OF MAGNITUDE more pedestrian fatal crashes per capita compared to another?

10 Deadliest Congressional Districts

	District	Area(s)	Median Household Income
1	Arizona 7th	West and South Phoenix	\$44K
2	Nevada 1st	Las Vegas and south suburbs	\$41K
3	South Carolina 6th	Parts of Charleston and Columbia and rural areas in-between	\$36K
4	Florida 24th	Northern suburbs of Miami	\$41K
5	Florida 13th	Clearwater and St. Petersburg	\$51K
6	Florida 5th	Tallahassee-to-Jacksonville	\$41K
7	Texas 35th	San Antonio-to-Austin	\$48K
8	Michigan 13th	Detroit plus some western suburbs	\$35K
9	Florida 10th	Northern, western and southern suburbs of Orlando	\$51K
10	Florida 6th	South Jacksonville suburbs to North Orlando suburbs	\$48K

Average U.S. Household Income =
\$59K

ALL of the deadliest congressional districts for pedestrians are below the U.S. median household income.

It is very unlikely that this is simply a coincidence.

Average U.S. Household Income =
\$59K

ALL of the deadliest congressional districts for pedestrians are below the U.S. median household income.

Poverty = Fatal Pedestrian Crashes?

10 Lowest Income Congressional Districts

	District	Area(s)	Median Household Income
1	New York 15th	The Bronx (highly urban)	\$28K
2	Kentucky 5th	Eastern Kentucky (highly rural)	\$32K
3	Michigan 13th	Detroit plus some western suburbs	\$35K
4	Mississippi 2 nd	Rural western Mississippi	\$36K
5	Alabama 7th	Rural western Alabama	\$36K
6	Ohio 11th	Most of Cleveland plus Akron	\$36K
7	South Carolina 6th	Parts of Charleston and Columbia and rural areas in-between	\$36K
8	Louisiana 5th	Rural northeast Louisiana	\$37K
9	Georgia 2nd	Rural southwest Georgia	\$38K
10	Arizona 7th	West and South Phoenix	\$41K

10 Lowest Income Congressional Districts

	District	Area(s)	Fatal Crash Rate
1	New York 15th	The Bronx (highly urban)	1.6
2	Kentucky 5th	Rural eastern Kentucky	1.5
3	Michigan 13th	Detroit plus some western suburbs	3.4
4	Mississippi 2 nd	Rural western Mississippi	2.6
5	Alabama 7th	Rural western Alabama	2.8
6	Ohio 11th	Most of Cleveland plus Akron	1.1
7	South Carolina 6th	Parts of Charleston and Columbia and rural areas in-between	4.1
8	Louisiana 5th	Rural northeast Louisiana	2.2
9	Georgia 2nd	Rural southwest Georgia	2.4
10	Arizona 7th	West and South Phoenix	4.5

Some of the poorest congressional districts in America - including places wracked by catastrophic drug abuse and entrenched multi-generational poverty - **are safer for pedestrians than the national average.**

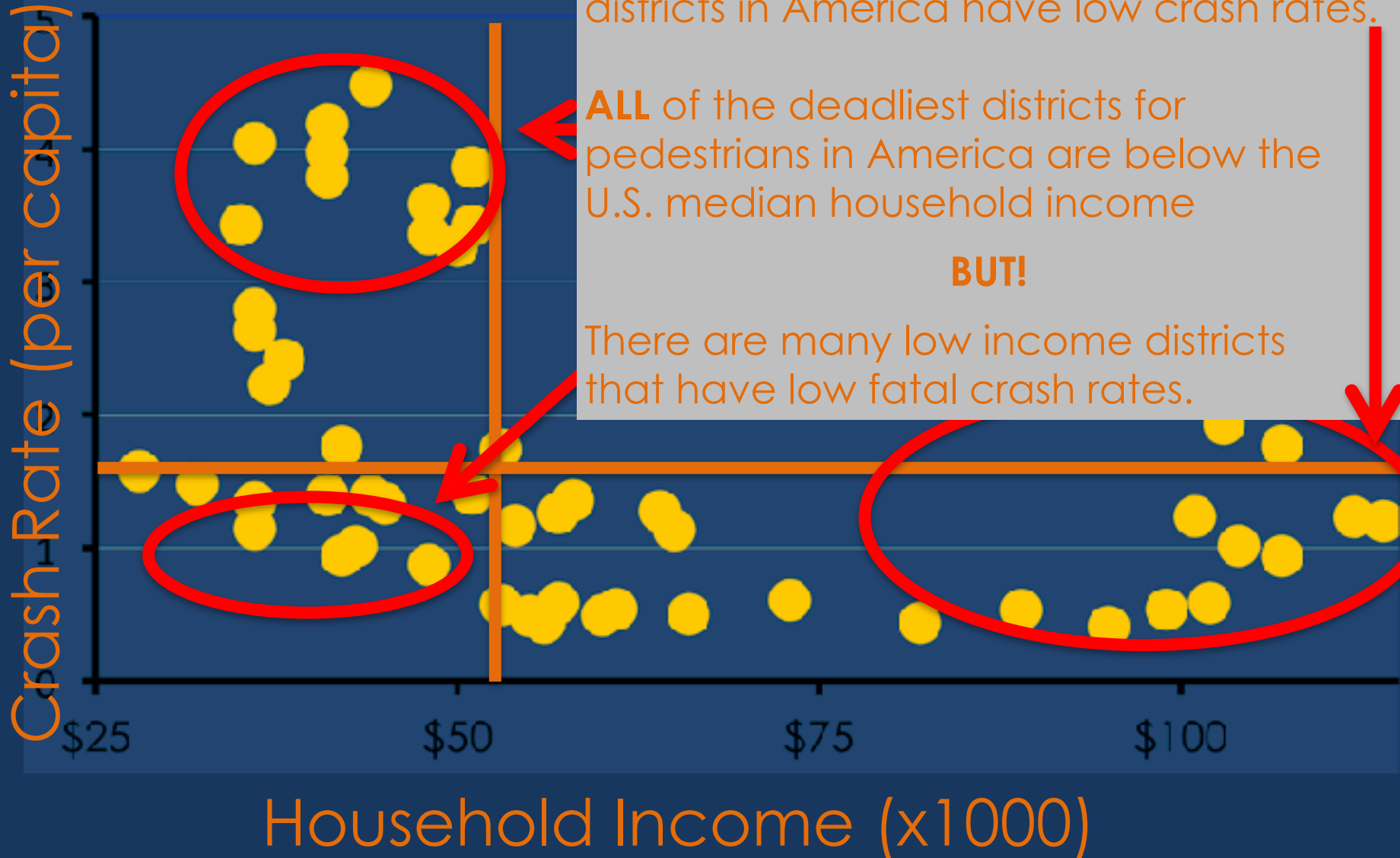
U.S. Congressional Districts

Almost all of the wealthiest congressional districts in America have low crash rates.

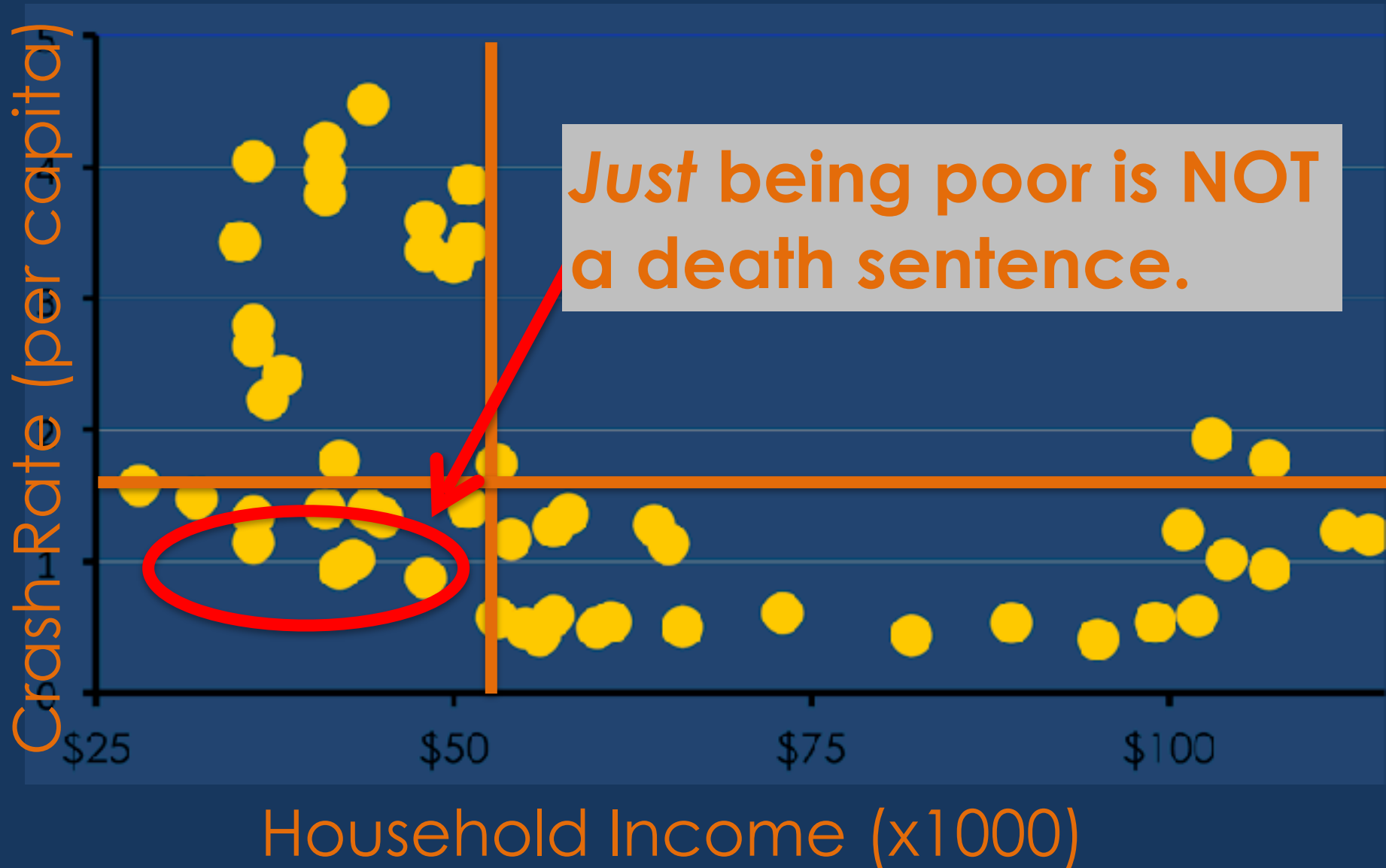
ALL of the deadliest districts for pedestrians in America are below the U.S. median household income

BUT!

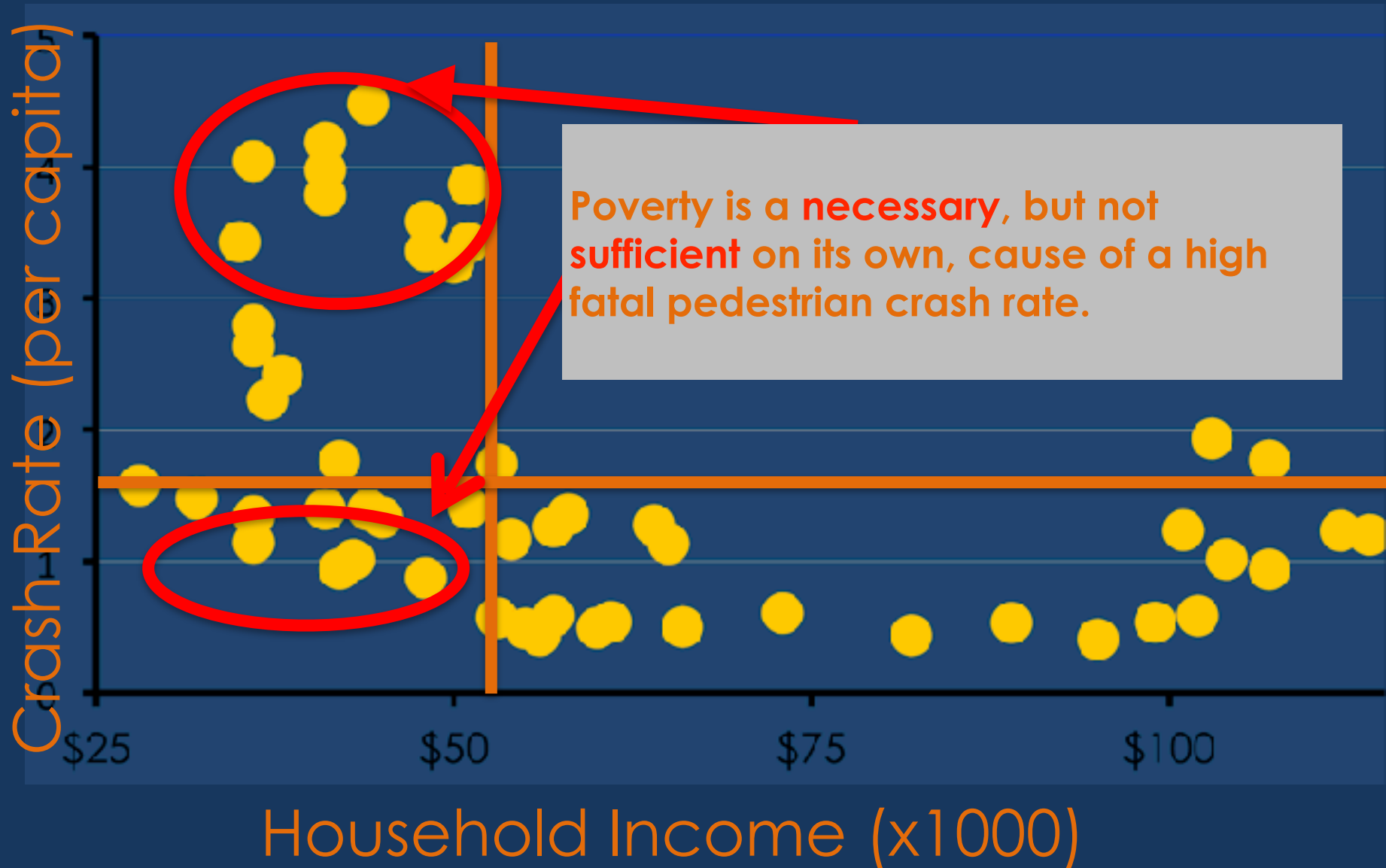
There are many low income districts that have low fatal crash rates.



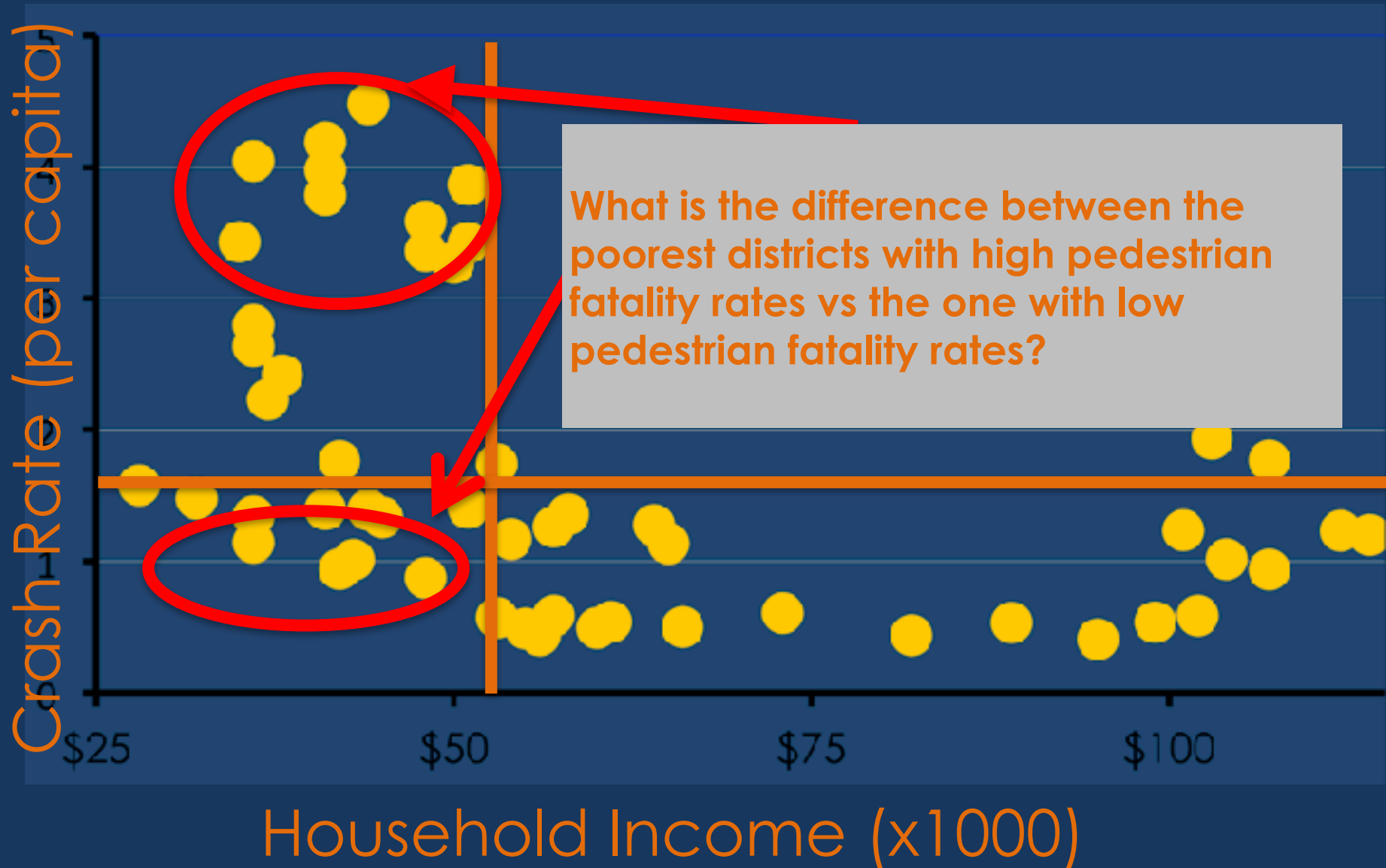
U.S. Congressional Districts



U.S. Congressional Districts



U.S. Congressional Districts



Poor Congressional Districts with the Most Divergent Pedestrian Safety Records

Safe Poor Districts		Unsafe Poor Districts	
Kentucky 1st	Rural western Kentucky	Arizona 7th	West and South Phoenix
Ohio 9th	Toledo and small cities bordering Lake Erie	Florida 13th	Clearwater, St. Petersburg
Ohio 11th	Cleveland and Akron	Florida 24th	North Miami suburbs
West Virginia 1st	Rural northern West Virginia with a couple of small cities (Wheeling, Morgantown)	Nevada 1st	Las Vegas and south suburbs

Some Poor Congressional Districts Are Deadly

But other ones aren't.

Counties

Adair, Allen, Ballard, Boyle, Caldwell,
Calloway, Carlisle, Casey, Christian,
Clinton, Crittenden, Cumberland,
Franklin, Fulton, Graves, Henderson,
Hickman, Hopkins, Livingston, Lyon,
Marshall, Marion, McCracken,
Metcalf, Monroe, Ohio, Russell,
Simpson, Taylor, Todd, Trigg, Union,
Washington, and Webster.

Population
Growth
1950-2010

~30%

Kentucky 1st

Nearly a dozen counties actually lost population. Only grew by ~30% in 60 years.

Kentucky 1st

Adair, Allen, Ballard, Boyle, Caldwell, Calloway, Carlisle, Casey, Christian, Clinton, Crittenden, Cumberland, Franklin, Fulton, Graves, Henderson, Hickman, Hopkins, Livingston, Lyon, Marshall, Marion, McCracken, Metcalfe, Monroe, Ohio, Russell, Simpson, Taylor, Todd, Trigg, Union, Washington, and Webster.

Avondale, Arizona

In 1950, this was a city of about 2,500 people. In 2010, it had over 70,000 people

Population Growth 1950-2010

~30%

~3,000%!

Kentucky 1st vs Arizona 7th

Very slow (or even negative) growth vs explosive growth

The Poorest Congressional Districts

Safe Poor Districts		Unsafe Poor Districts	
Kentucky 1st	Rural western Kentucky	Arizona 7th	West and South Phoenix
Ohio 9th	Toledo and small cities bordering Lake Erie	Florida 13th	Clearwater, St. Petersburg
Ohio 11th	Cleveland and Akron	Florida 24th	North Miami suburbs
West Virginia 1st	Rural northern West Virginia with a couple of small cities (Wheeling, Morgantown)	Nevada 1st	Las Vegas and south suburbs

Little or No Postwar Growth

Areas “left behind” after World War II

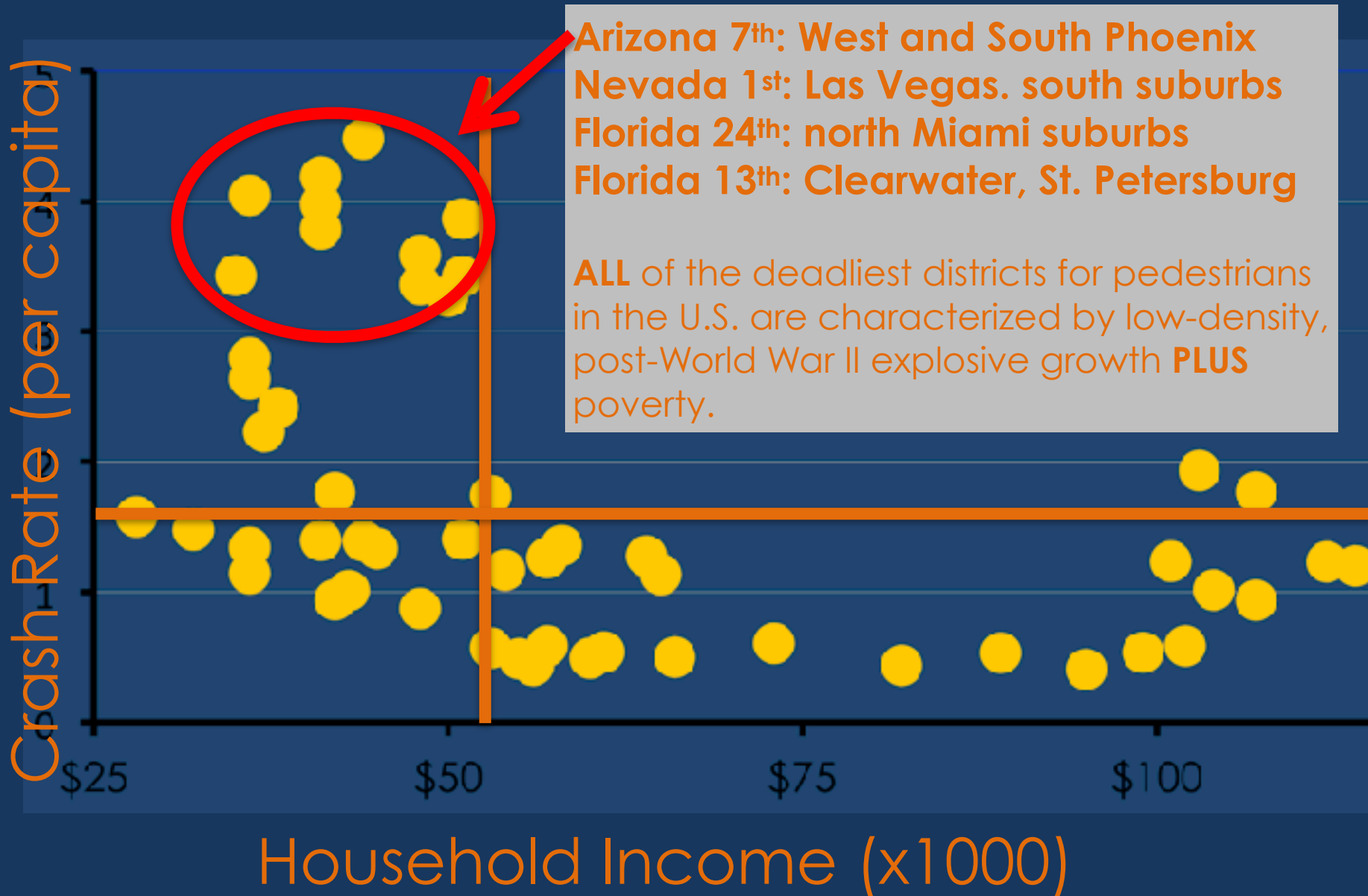
The Poorest Congressional Districts

Safe Poor Districts		Unsafe Poor Districts	
Kentucky 1st	Rural western Kentucky	Arizona 7th	West and South Phoenix
Ohio 9th	Toledo and small cities bordering Lake Erie	Florida 13th	Clearwater, St. Petersburg
Ohio 11th	Cleveland and Akron	Florida 24th	North Miami suburbs
West Virginia 1st	Rural northern West Virginia with a couple of small cities (Wheeling, Morgantown)	Nevada 1st	Las Vegas and south suburbs

Explosive Post-War Growth

Area that doubled in population...and then doubled again and again and again

U.S. Congressional Districts

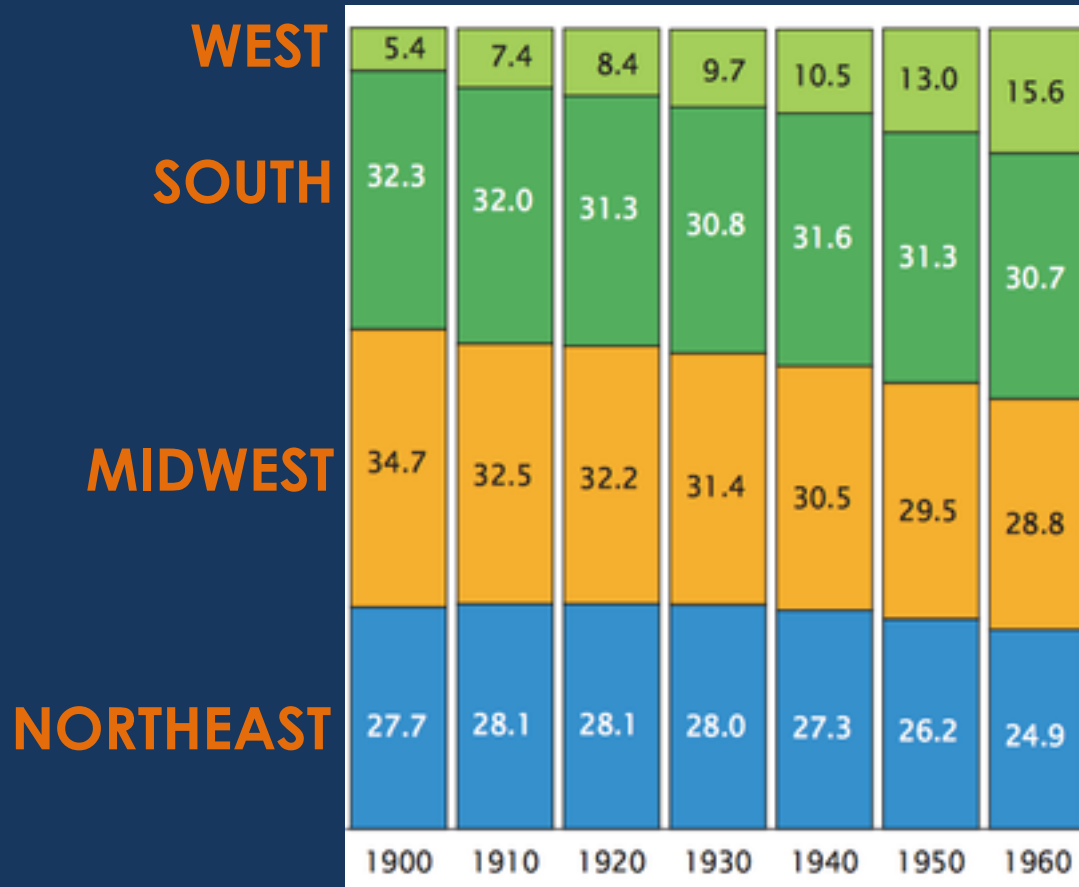




PHOENIX

Followed New Post-War Development Rules

Subdivisions and “Stroads” (We’re going to hear more about “stroads” today.)



The South

In 1960, the South had been a (relatively) declining region for seven straight decades

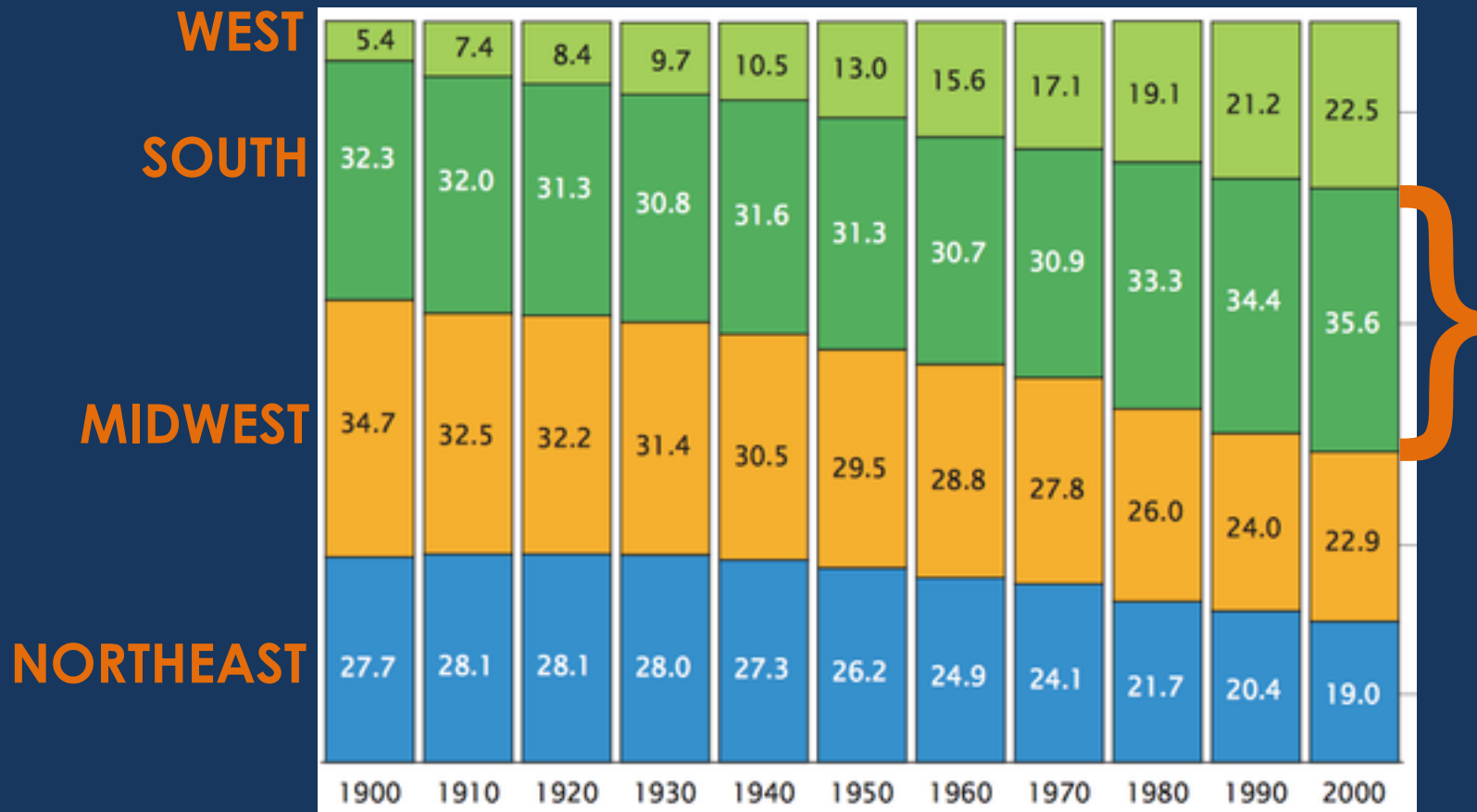
How Air-Conditioning Conquered America (Even the Pacific Northwest)

After the 1950s, air-conditioning enabled not just the construction of millions of Southern homes, but also the economic development of the South. It made possible industrial work like printing, food processing and electrical manufacturing that would be hard to manage in sweltering heat. And it created the possibility for white-collar jobs in mechanically cooled office buildings.

“It’s hard to imagine that, say, Birmingham would be a big center of health care industry, or that Atlanta would have the world’s busiest airport, or that Jacksonville would be a center for insurance if people were sitting under ceiling fans in hot, humid offices,”

Did You Think I Had Forgotten About Air Conditioning?

Before air conditioning it was the “South”. After air conditioning it was the “Sunbelt”



From "South" to "Sunbelt"

After 1960 the South began to grow faster than the rest of the country.

How Air-Conditioning Conquered America (Even the Pacific Northwest)

“Phoenix is a relatively recent city — it was just a stop on the highway to the West before air-conditioning,”

Did You Think I Had Forgotten About Air Conditioning?

Before air conditioning it was the “South”. After air conditioning it was the “Sunbelt”

1. ALL of the deadliest congressional districts in the U.S. for pedestrians are relatively poor.
2. They are also almost all in the Sunbelt (while many poor urban and rural congressional districts outside the Sunbelt actually have comparatively good pedestrian fatality rates).
3. The deadliest congressional districts in America are distinguished by TWO characteristics: they are poor AND they experienced explosive growth after World War II.
4. Most of that post-War growth was in the South (where it was specifically enabled by increasingly cheap... *air conditioning*).

Conclusions

The surprising connection between air conditioning and America's crisis of pedestrian fatalities