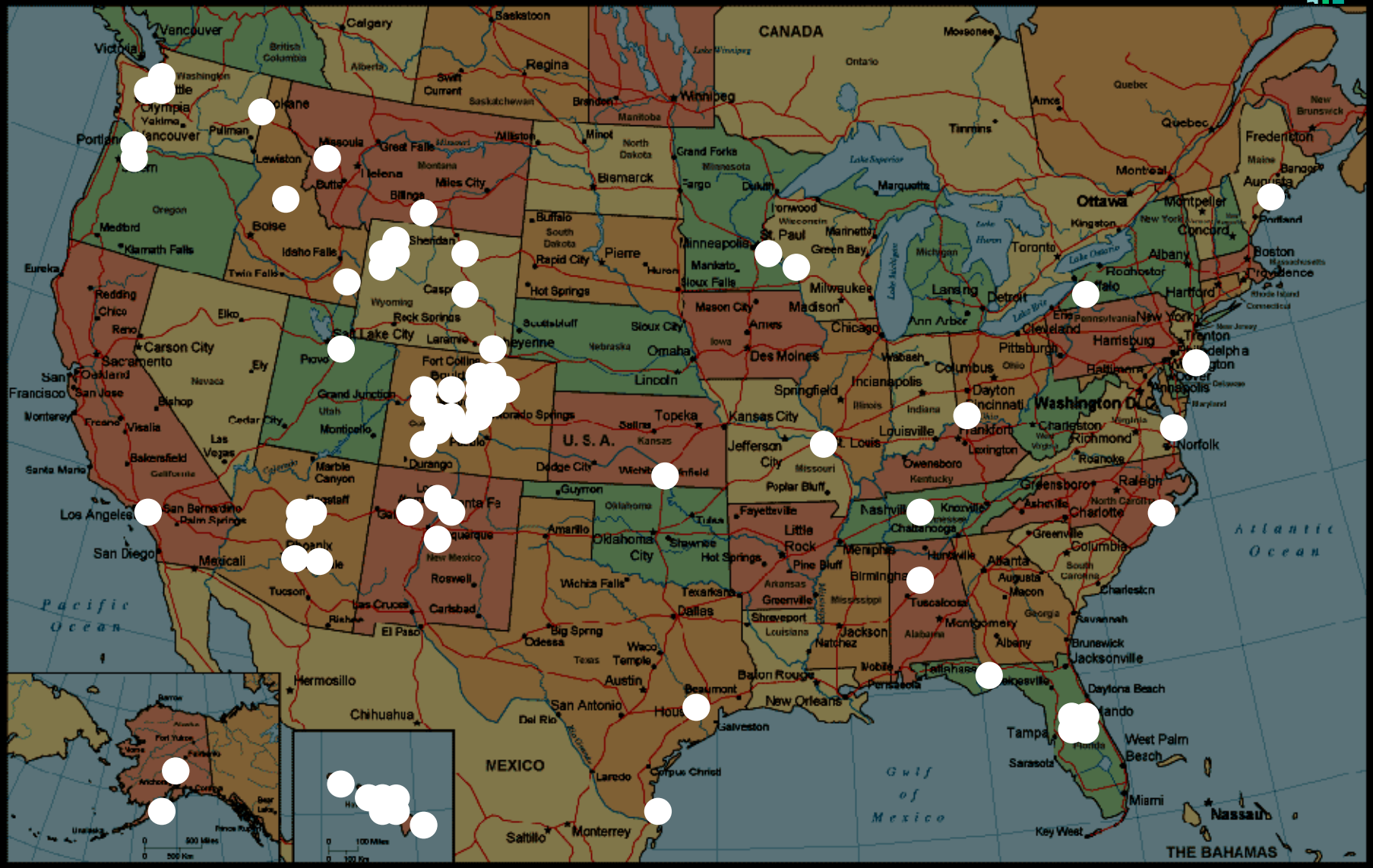
Photo: Courtesy AzDOT

Smart Growth & Mobility

Opportunities for Arizona & Maricopa County

Charlier Associates, Inc.

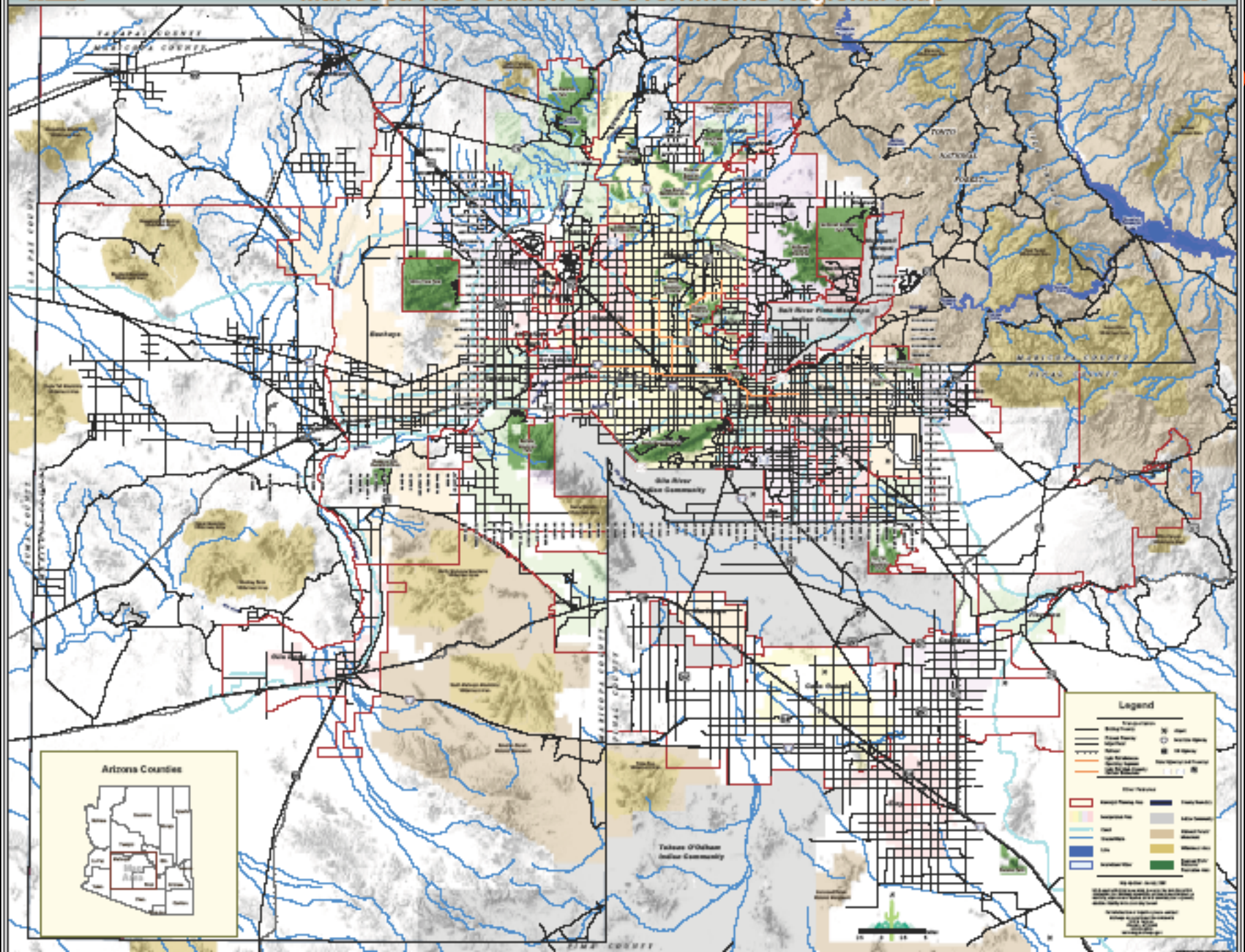
Our Work


CANADA
U. S. A.
MEXICO
Pacific Ocean
Atlantic Ocean
Gulf of Mexico
THE BAHAMAS
Washington D.C.
Vancouver
Victoria
Calgary
Saskatoon
Regina
Winnipeg
Ottawa
Montreal
Toronto
Quebec
Fredericton
Portland
Boston
Providence
Hartford
New York
Trenton
Philadelphia
Baltimore
Norfolk
Raleigh
Charlotte
Atlanta
Jacksonville
Tampa
Miami
Nassau
Key West
New Orleans
Houston
Dallas
San Antonio
Austin
Denver
Salt Lake City
Phoenix
Las Vegas
Los Angeles
San Diego
San Francisco
Sacramento
Portland
Seattle
Spokane
Boise
Chicago
Detroit
Cleveland
Pittsburgh
Columbus
Indianapolis
Cincinnati
Louisville
Nashville
Memphis
Birmingham
Minneapolis
St. Paul
Milwaukee
Madison
Omaha
Kansas City
St. Louis
Denver
Albuquerque
Tucson
Hermosillo
Chihuahua
Monterrey
Saltillo
Laredo
Corpus Christi
Galveston
Baton Rouge
Mobile
Tallahassee
Orlando
Daytona Beach
West Palm Beach
Sarasota
Savannah
Charleston
Raleigh
Norfolk
Richmond
Roanoke
Knoxville
Chattanooga
Huntsville
Tuscaloosa
Montgomery
Albany
Macon
Augusta
Columbia
Greenville
Asheville
Greensboro
Lexington
Frankfort
Owensboro
Evansville
Indianapolis
Springfield
Peoria
Chicago
Milwaukee
Madison
Green Bay
Marquette
Duluth
Minneapolis
St. Paul
Des Moines
Omaha
Lincoln
Topeka
Wichita
Tulsa
Oklahoma City
Amarillo
Lubbock
Abilene
Dallas
Waco
Austin
Corpus Christi
Laredo
Monterrey
Saltillo
Chihuahua
Hermosillo
Tucson
Las Cruces
El Paso
Albuquerque
Santa Fe
Denver
Cheyenne
Salt Lake City
Boise
Spokane
Seattle
Portland
Sacramento
San Francisco
San Jose
Los Angeles
San Diego
Las Vegas
Phoenix
Tucson
Reno
Carson City
Salt Lake City
Denver
Cheyenne
Billings
Great Falls
Helena
Missoula
Bismarck
Fargo
Sioux Falls
Pierre
Rapid City
Lincoln
Omaha
Des Moines
Cedar Rapids
Milwaukee
Madison
Chicago
Detroit
Lansing
Cleveland
Pittsburgh
Harrisburg
Baltimore
Washington D.C.
Norfolk
Raleigh
Charlotte
Atlanta
Jacksonville
Tampa
Miami
Nassau
Key West
New Orleans
Houston
Dallas
San Antonio
Austin
Denver
Salt Lake City
Phoenix
Las Vegas
Los Angeles
San Diego
San Francisco
Sacramento
Portland
Seattle
Spokane
Boise
Chicago
Detroit

This Afternoon

1. Energy: the Post-Petroleum Era
2. Transportation Trajectories
3. Arizona/Maricopa Opportunities

Maricopa Association of Governments Regional Map



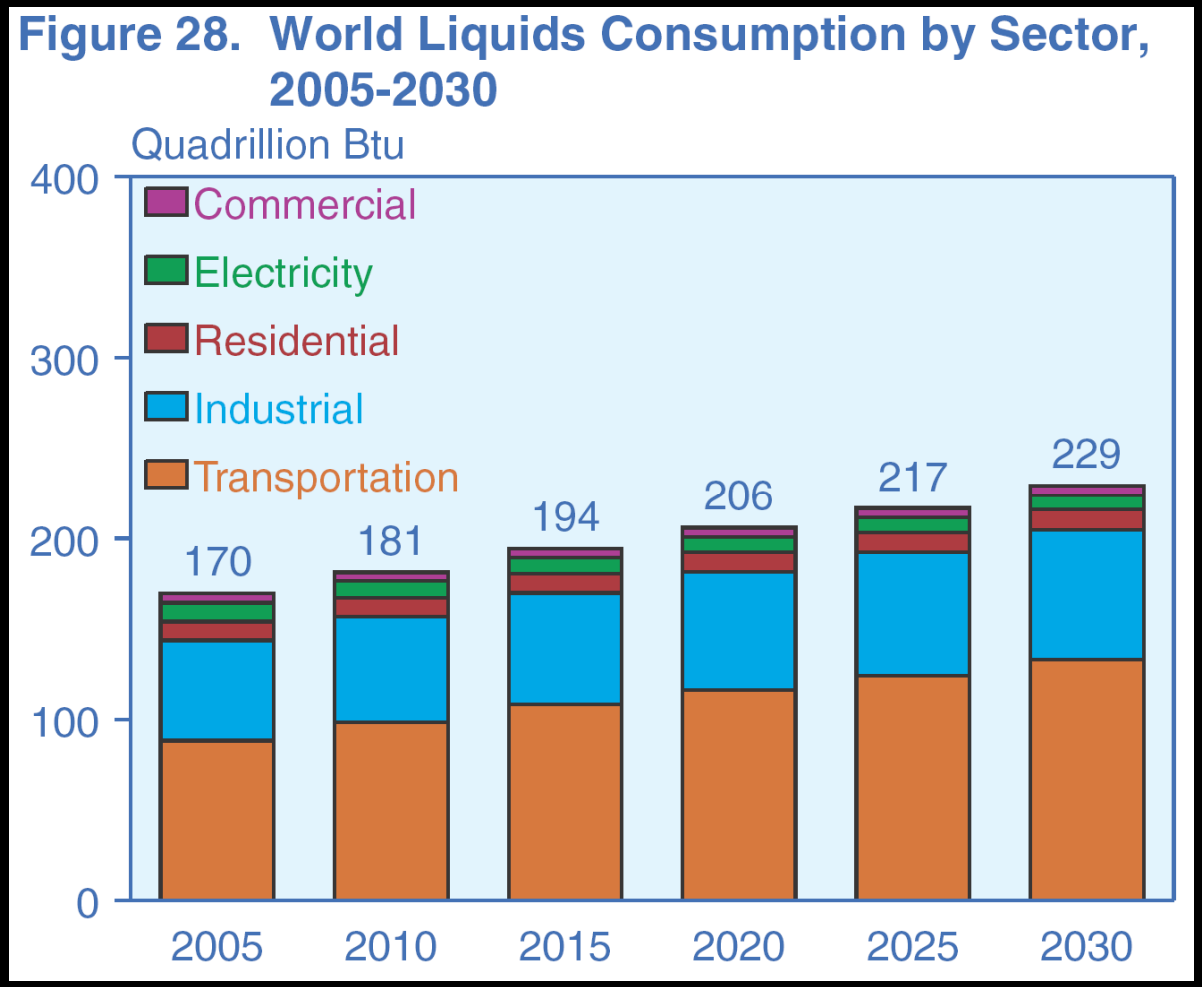
1

1. Energy: the Post-Petroleum Era

Smart Mobility – Arizona & Maricopa County

Charlier Associates, Inc.

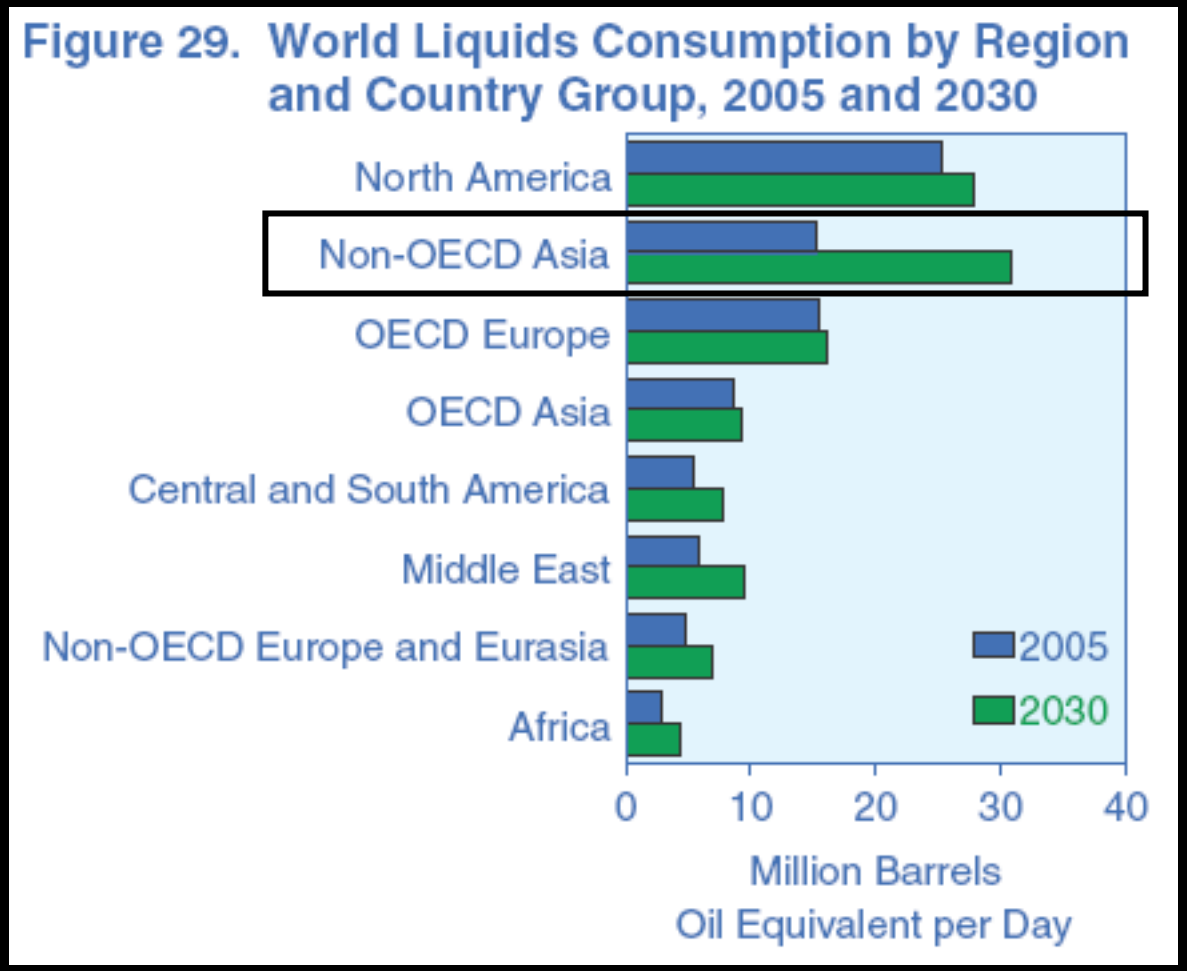
The Official Forecast



Transportation = 74% of increased petroleum consumption

Source: United States Energy Information Administration, International Energy Outlook 2008, September 2008

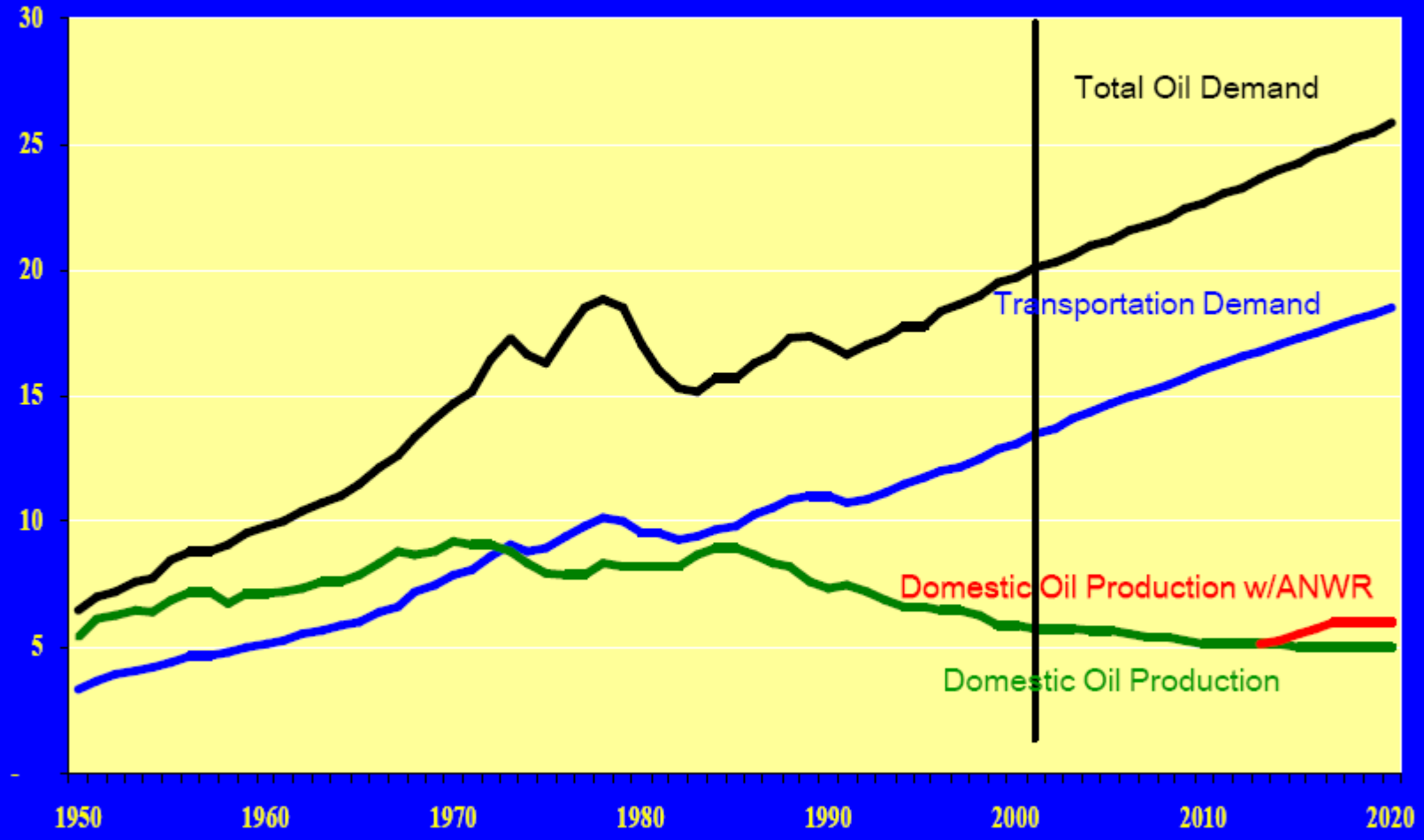
The Official Forecast



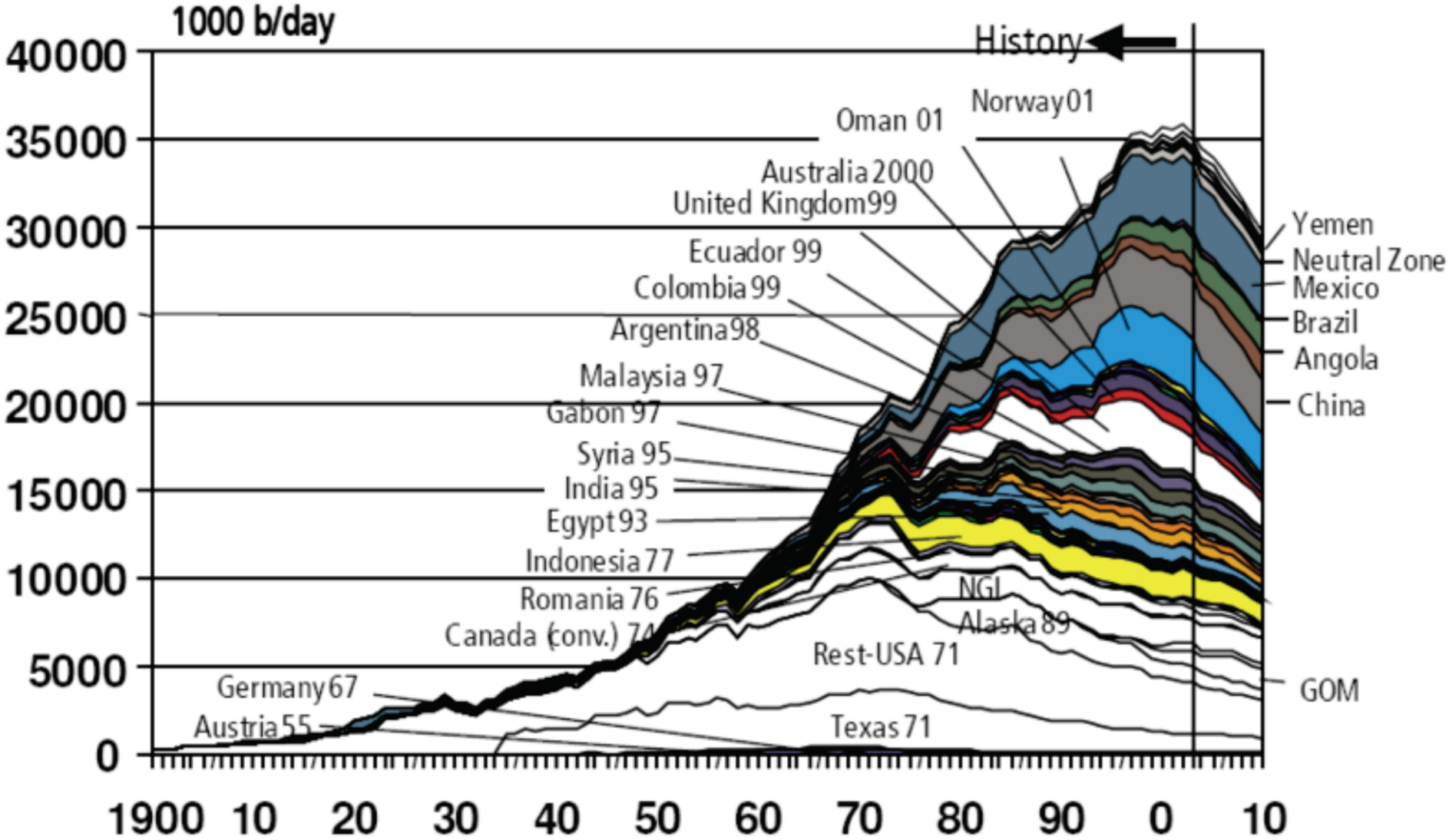
India and China will double their demand for petroleum

Source: United States Energy Information Administration, International Energy Outlook 2008, September 2008

US Oil Consumption (million barrels per day)

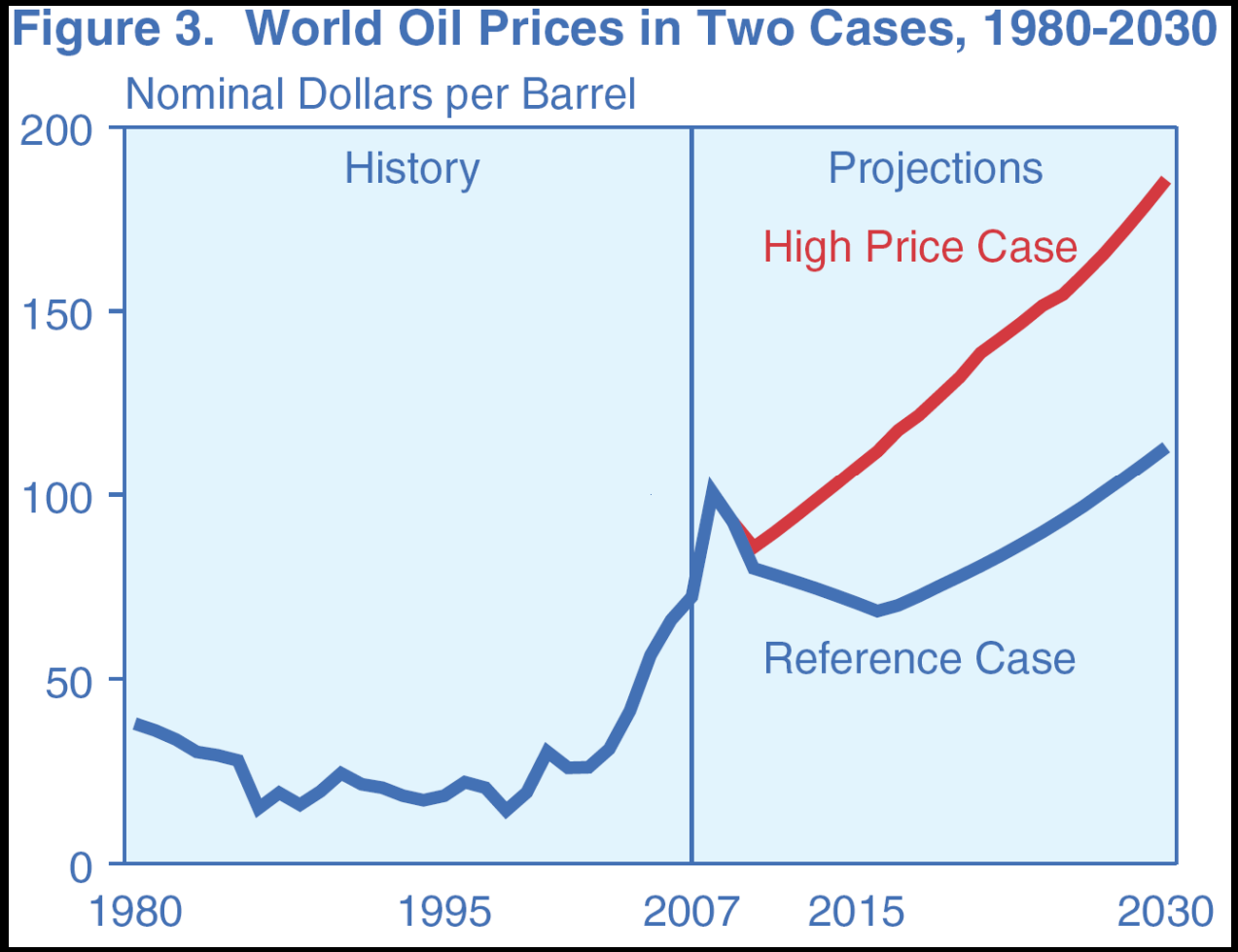


EIA, Annual Energy Outlook 2001; "Potential Oil Production from the Coastal Plain of ANWR," - EIA Reserves & Production Division



Source: Industry database, 2003 (IHS 2003)
OGJ, 9 Feb 2004 (Jan-Nov 2003)

The Official Forecast

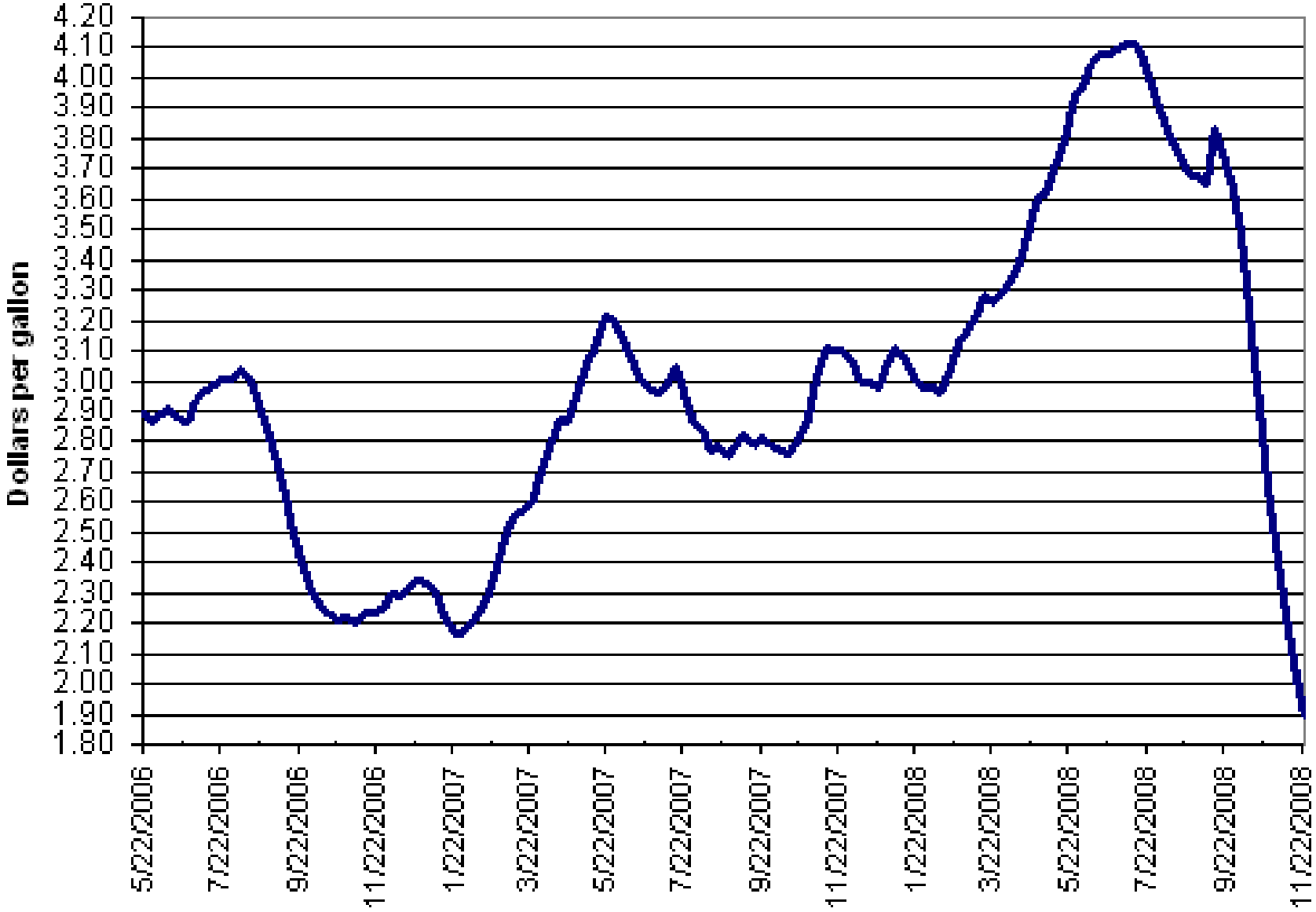


$186/barrel

-13% Consumption

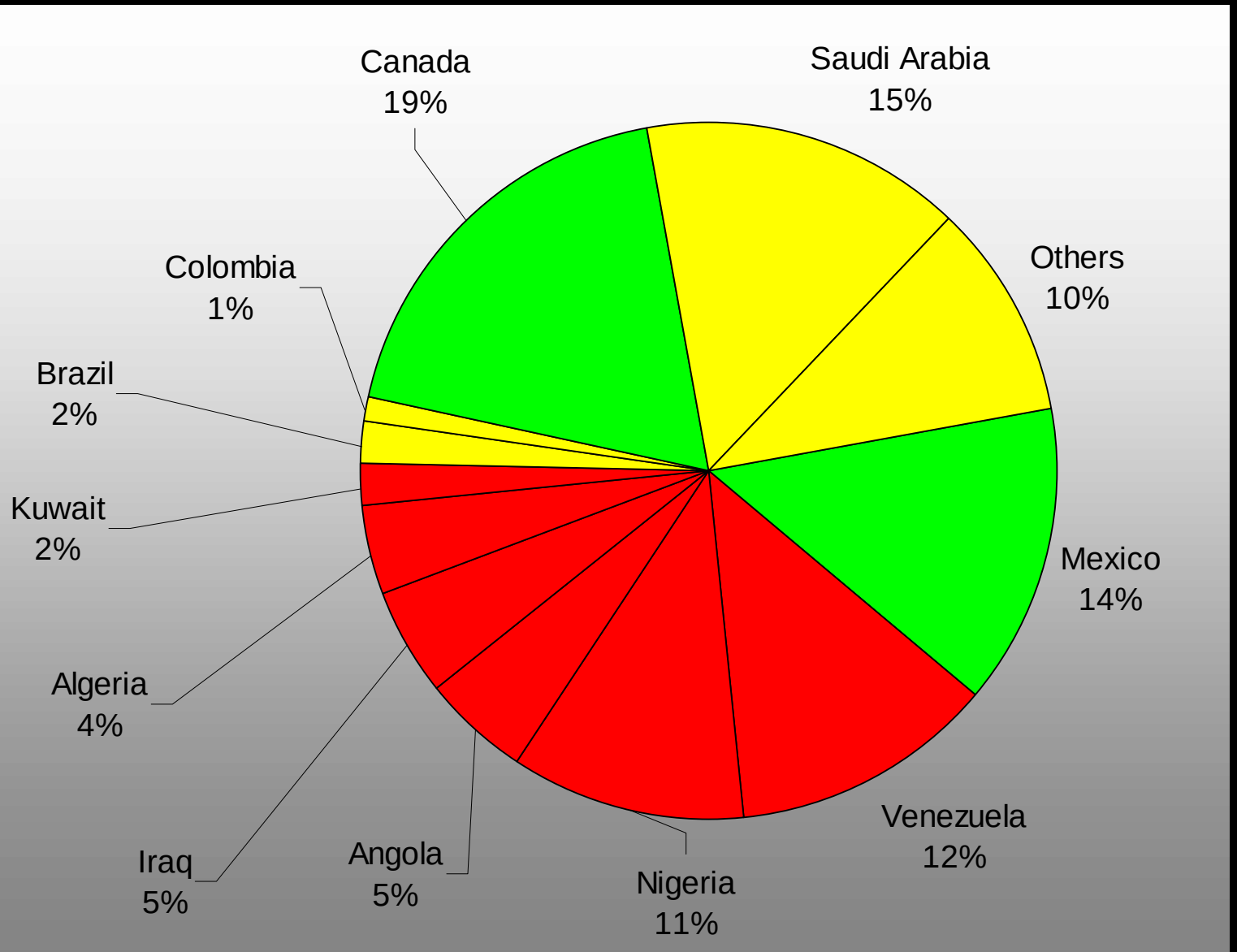
Source: United States Energy Information Administration, International Energy Outlook 2008, September 2008

Weekly U.S. Retail Gasoline Prices, Regular Grade



Source: Energy Information Administration

2007 US Oil Imports by Country



STABILITY OF U.S. RELATIONS

HIGH

31%

MODERATE

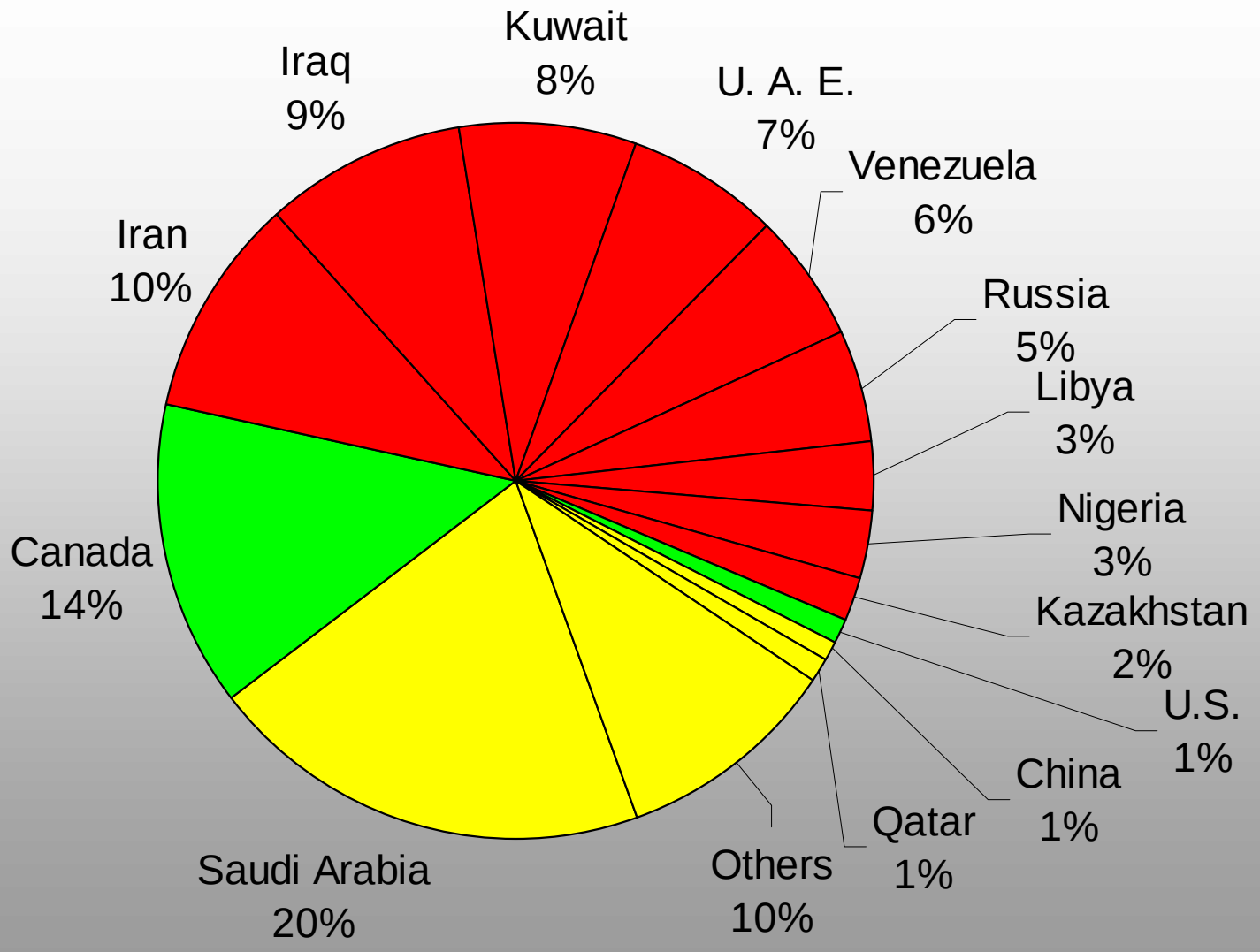
28%

LOW

41%

Source: Oil & Gas Journal

Remaining Oil Reserves by Country



STABILITY OF U.S. RELATIONS

HIGH

15%

MODERATE

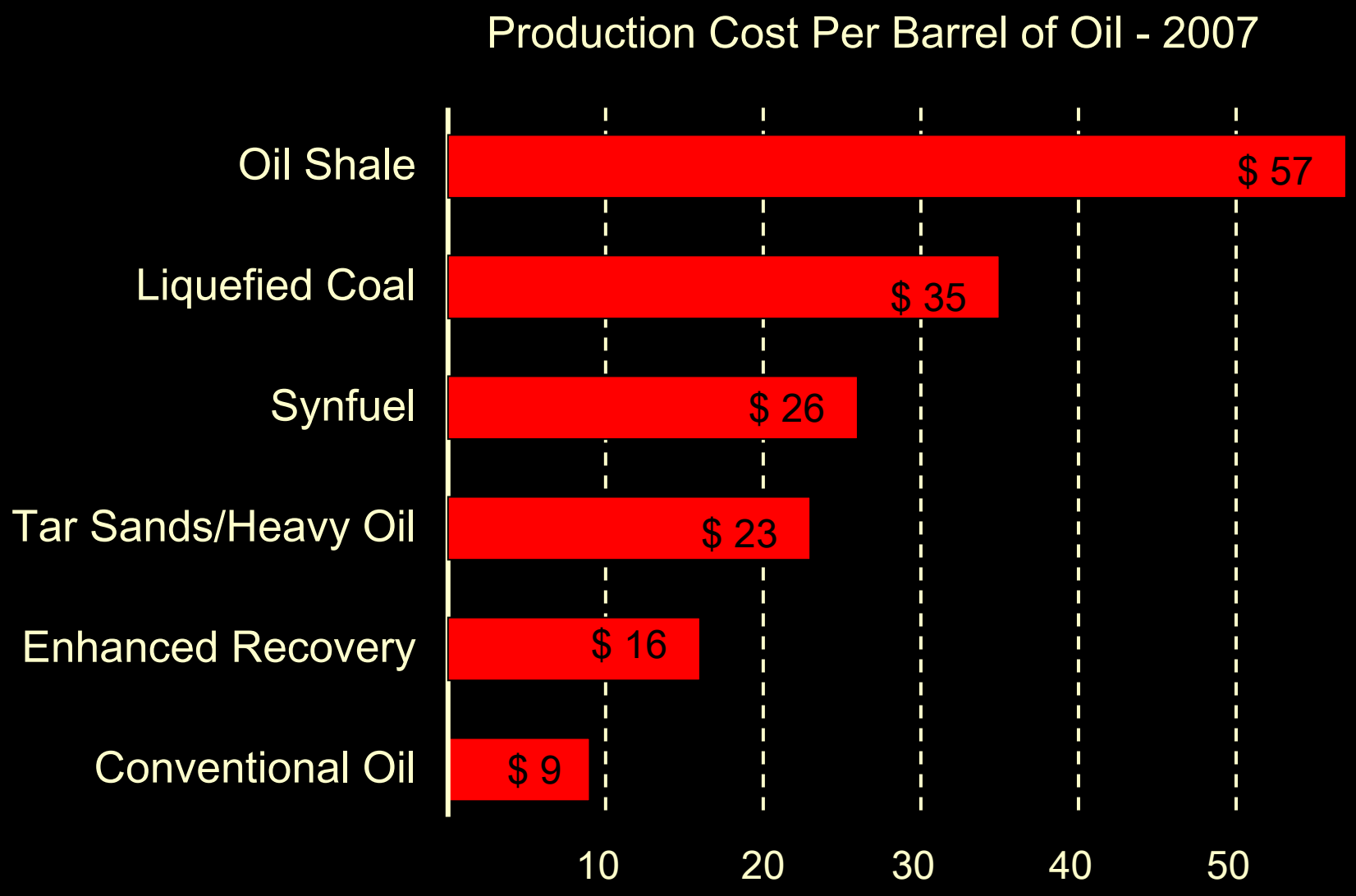
32%

LOW

53%

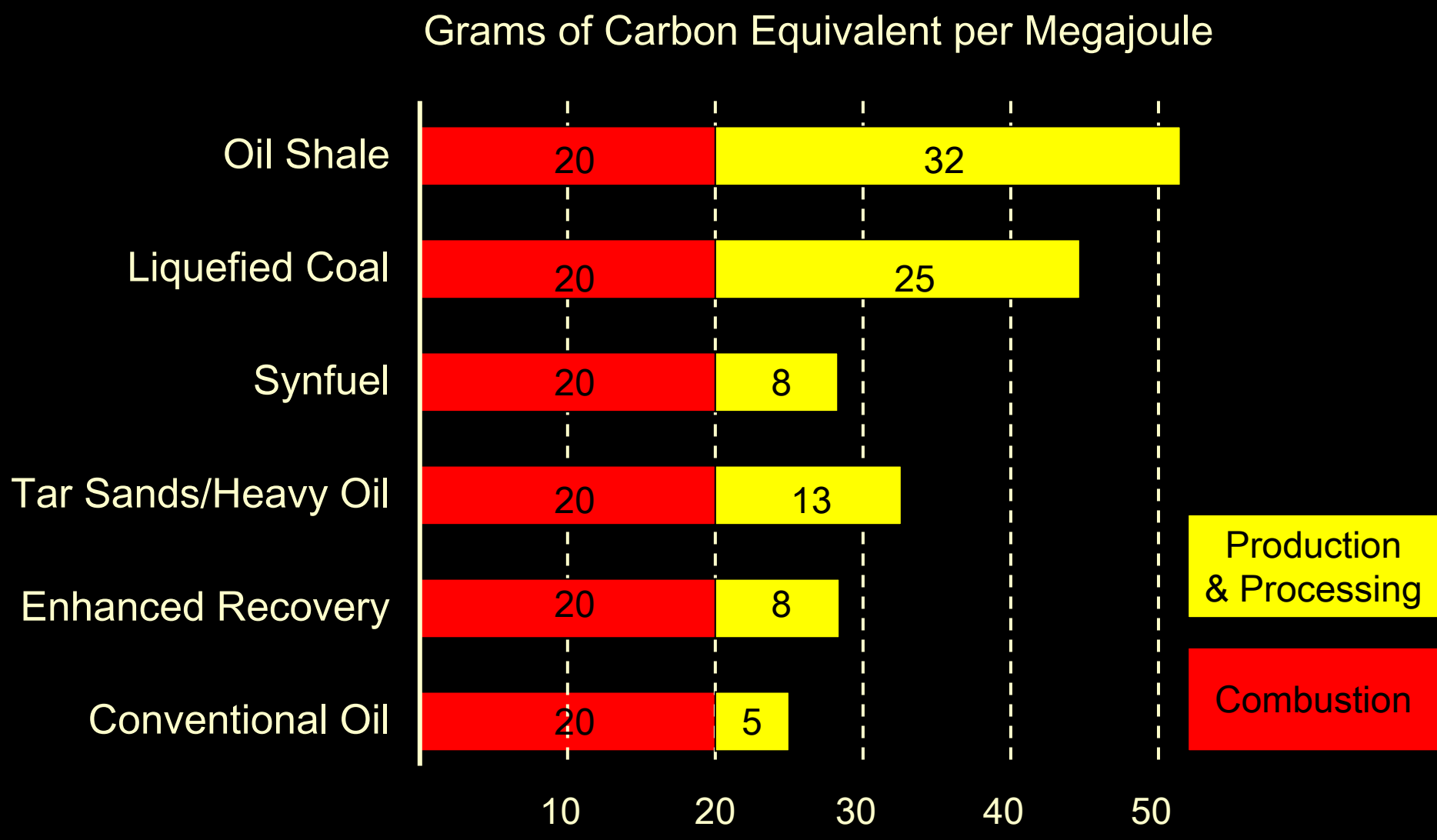
Source: Oil & Gas Journal

Production Cost – Sources of Oil



Source: Brandt & Farrell, UC Berkeley

GHG Emissions – Sources of Oil



Source: Brandt & Farrell, UC Berkeley

Bottom Line: Energy

- Petroleum demand will far exceed supply
- Prices will rise considerably by 2030
- Prices will also tend to be unstable
- 95% of transportation energy today is provided by imported petroleum
- Transportation is the fastest growing petroleum end use category - worldwide
- Energy security will not be achievable until we reduce reliance on oil for transportation

2

2. Transportation Trajectories

Smart Mobility – Arizona & Maricopa County

Charlier Associates, Inc.

Trajectories

- VMT and Traffic Congestion
- Climate Change
- Family Budgets
- Personal Health

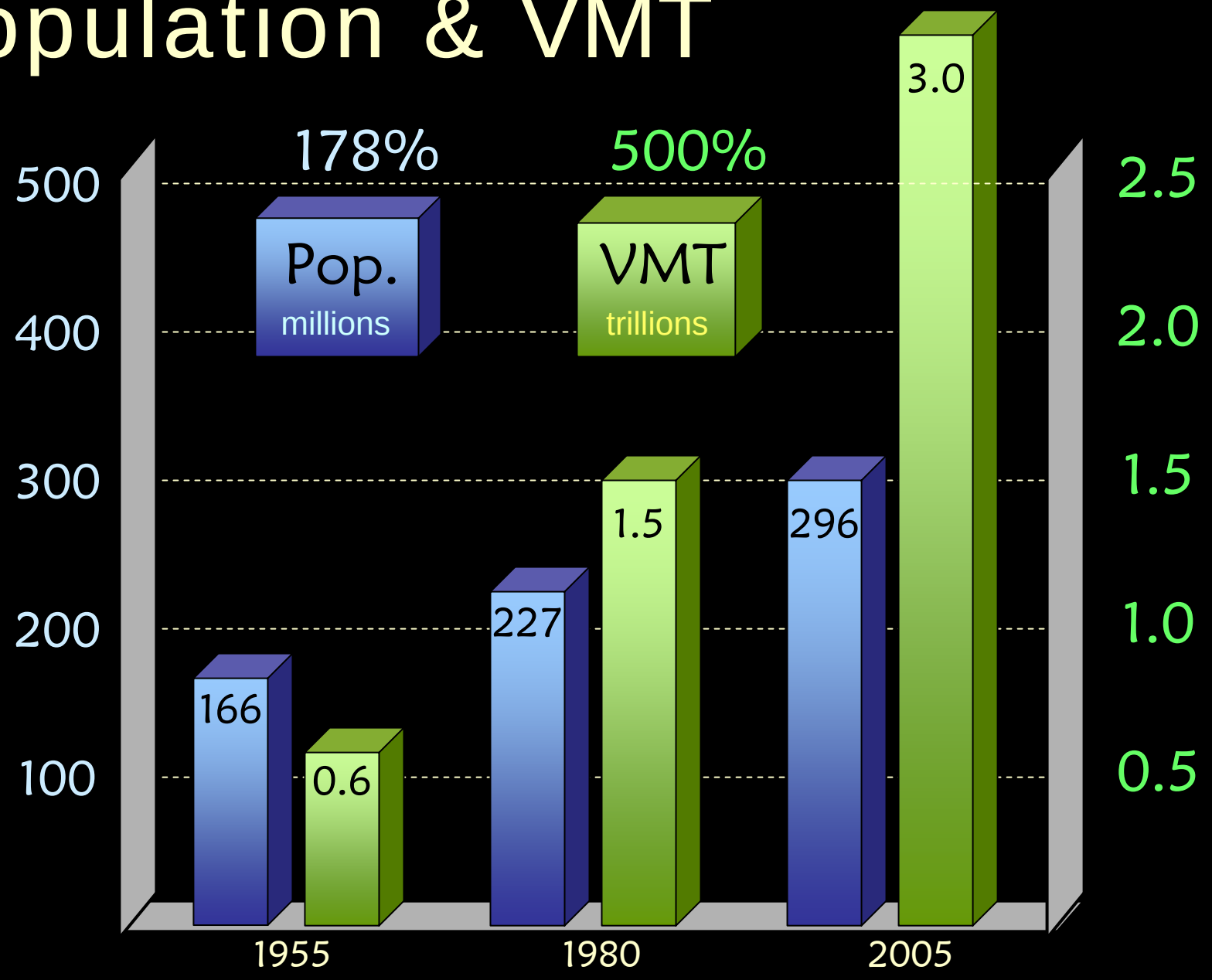
VMT and Traffic Congestion

Transportation Trajectories

Charlier Associates, Inc.

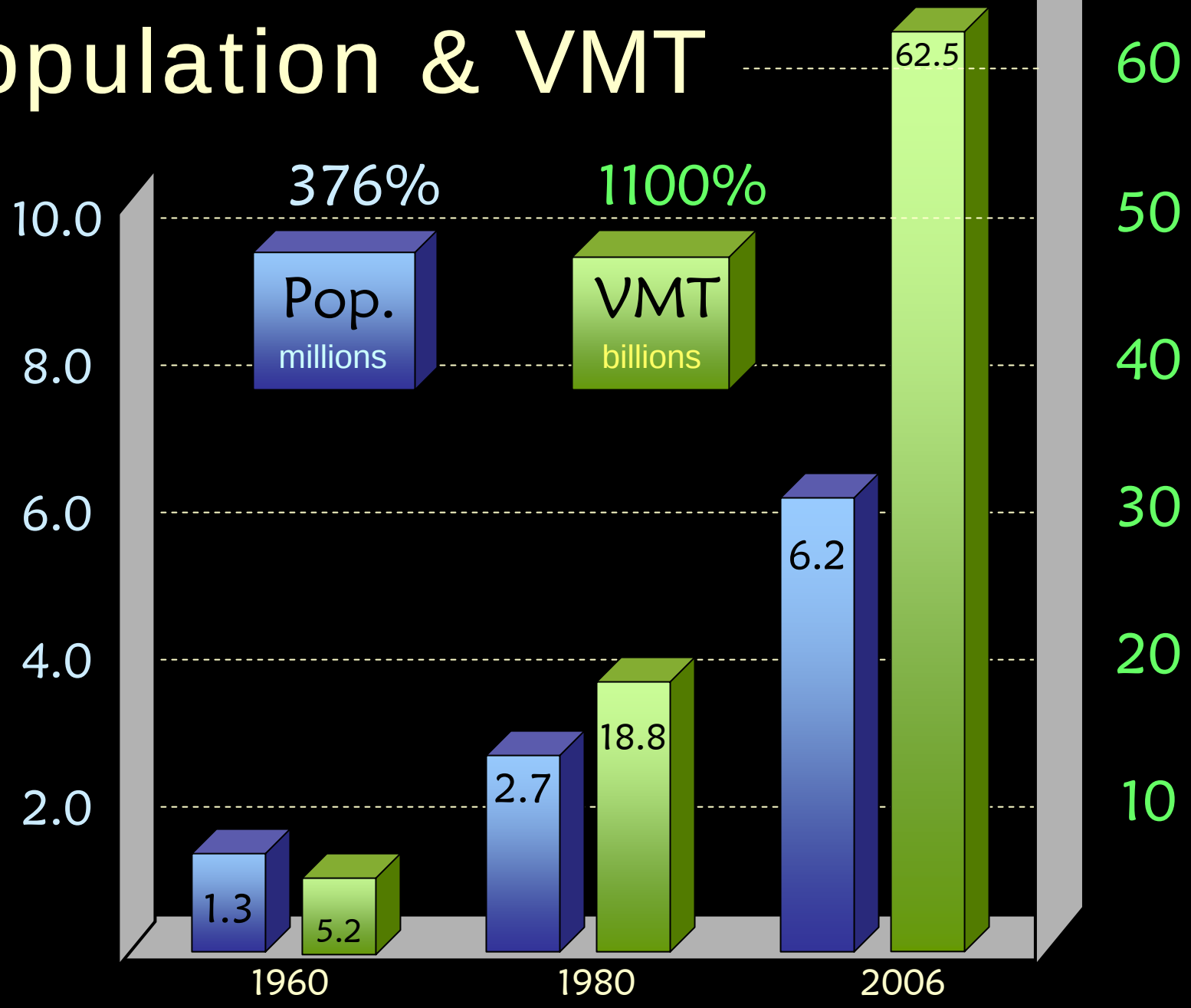
United States

Population & VMT



Arizona

Population & VMT



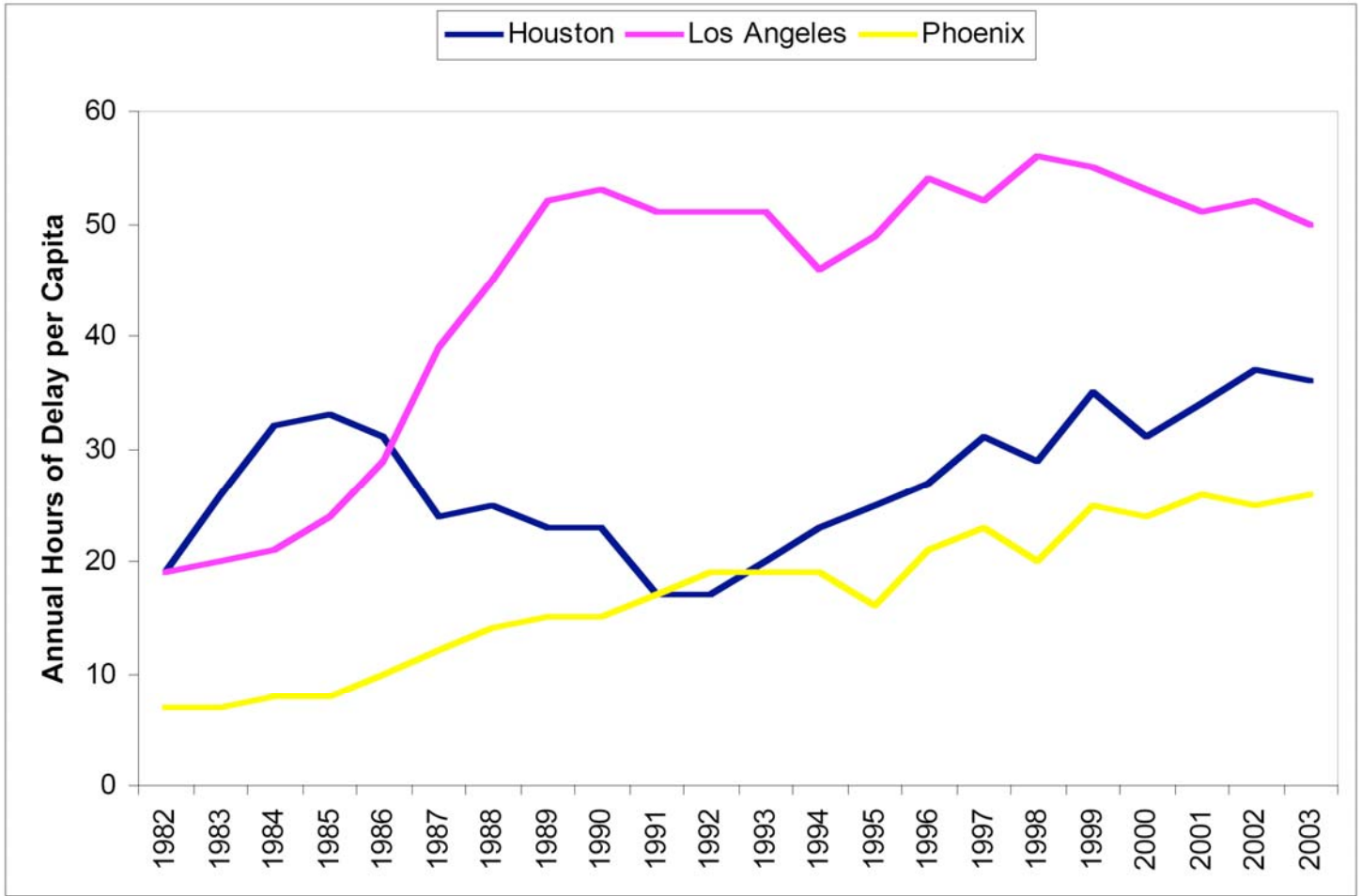
Phoenix Valley Freeways

TTI Data - 2007

New roads needed to avoid increase in congestion:
412 lane miles per year

Road Building Has Not Reduced Delay

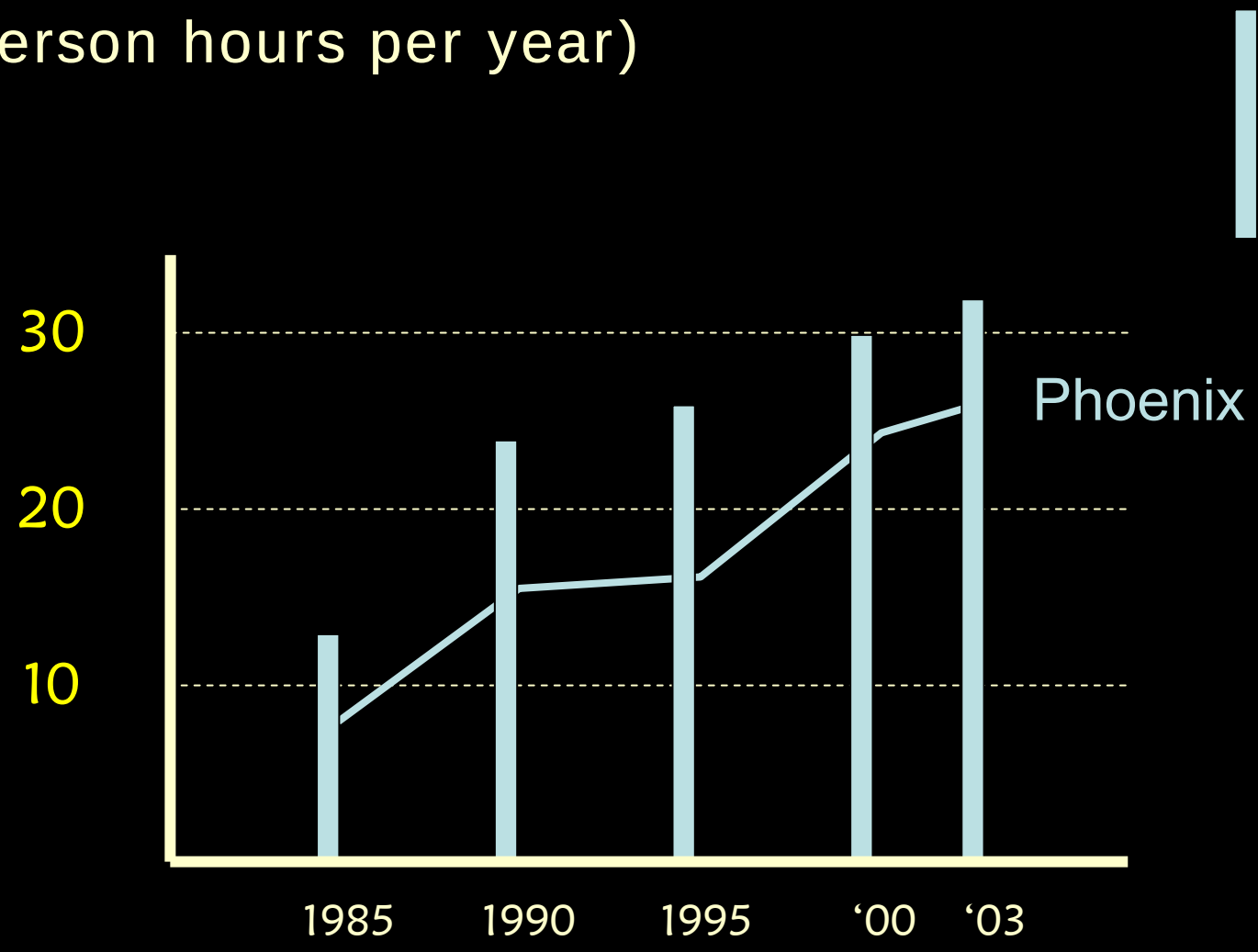
Figure 1-6 Growth of Annual Hours of Delay per Capita
Source: Schrank and Lomax 2005.



United States

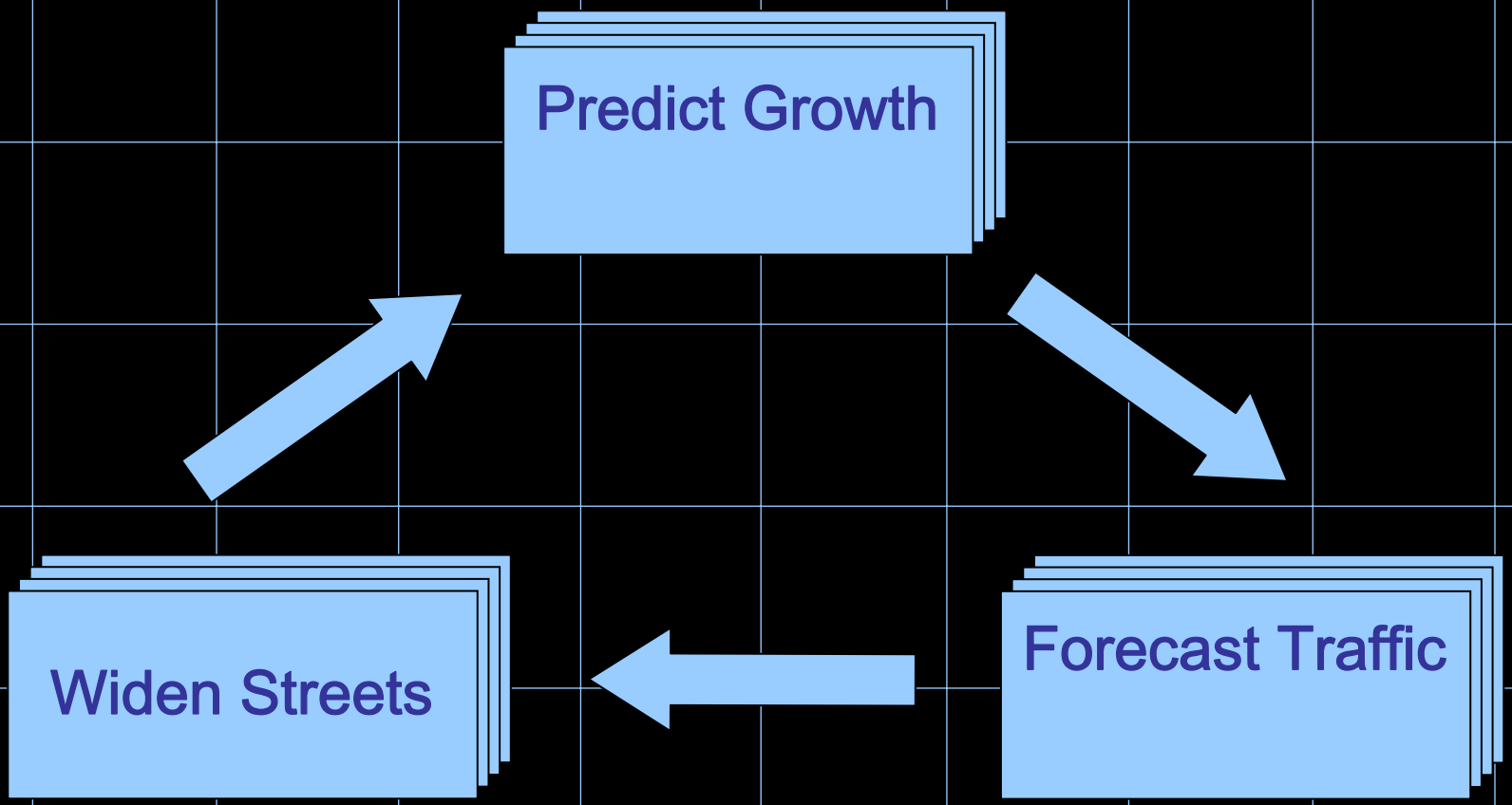
Per Capita Traffic Delay

(person hours per year)



What about congestion alleviation?

Have you ever noticed...?



Induced Traffic

Types of Induced Traffic

Changes in travel route …… Immediate

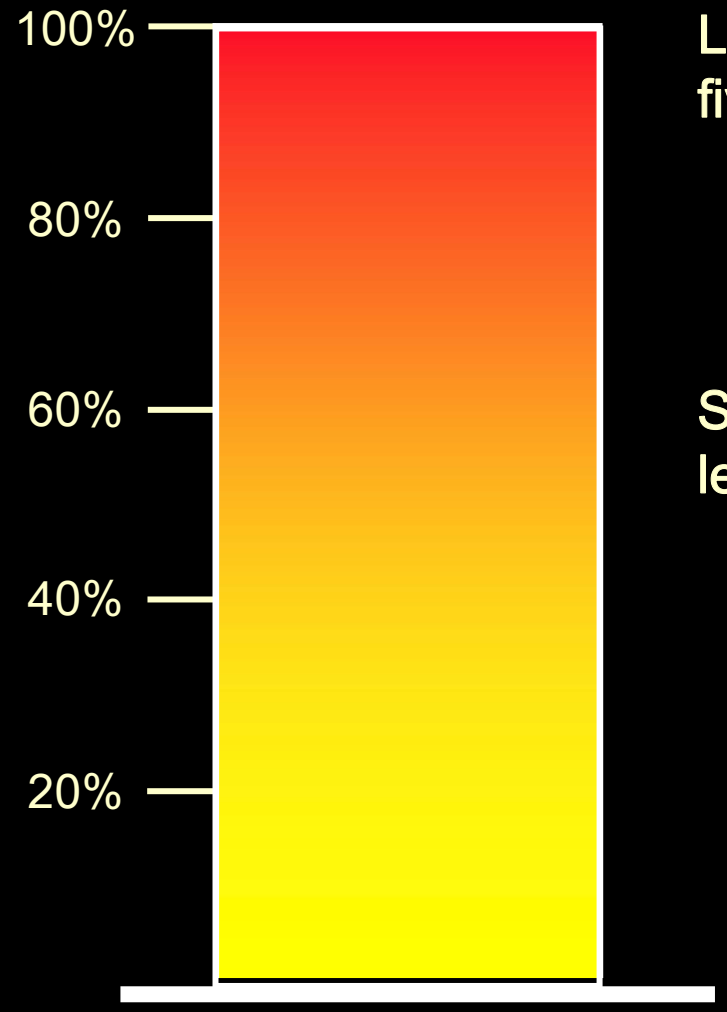
Changes in mode of travel ……. < 6 months

Changes in time of travel ……. < 6 months

Changes in amount of travel ……. < 6 months

Changes in origins & destinations …… < 10 years

% of new capacity consumed by induced traffic…



Long Term:
five to 10 years

Short Term:
less than five years

If you build it . . .

. . . they will come

If you build it . . .

. . . they will come

Are we responding to traffic growth…
…or are we causing it?

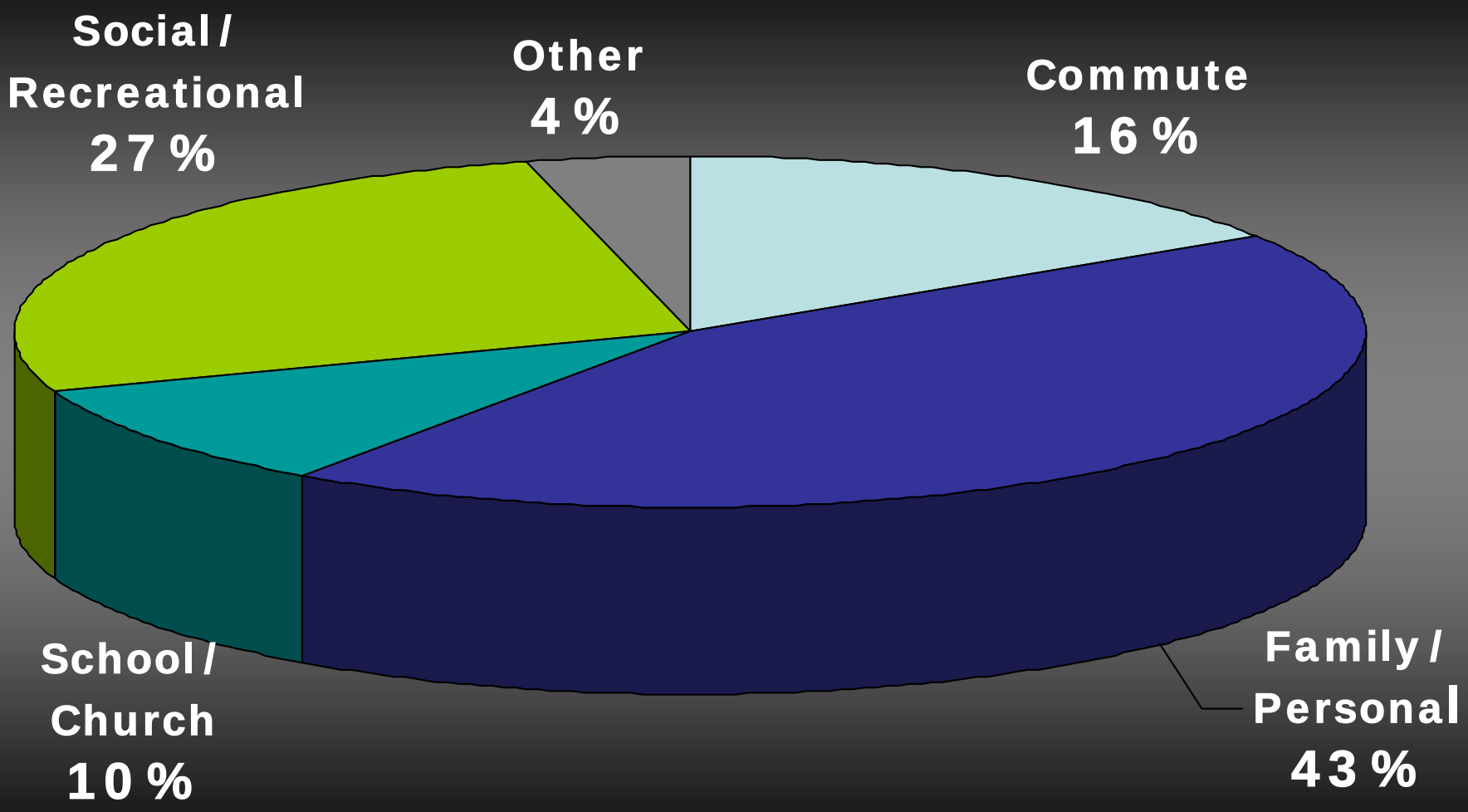
“Project & Provide”

Daily Miles of Travel Per Capita

(NHTS)

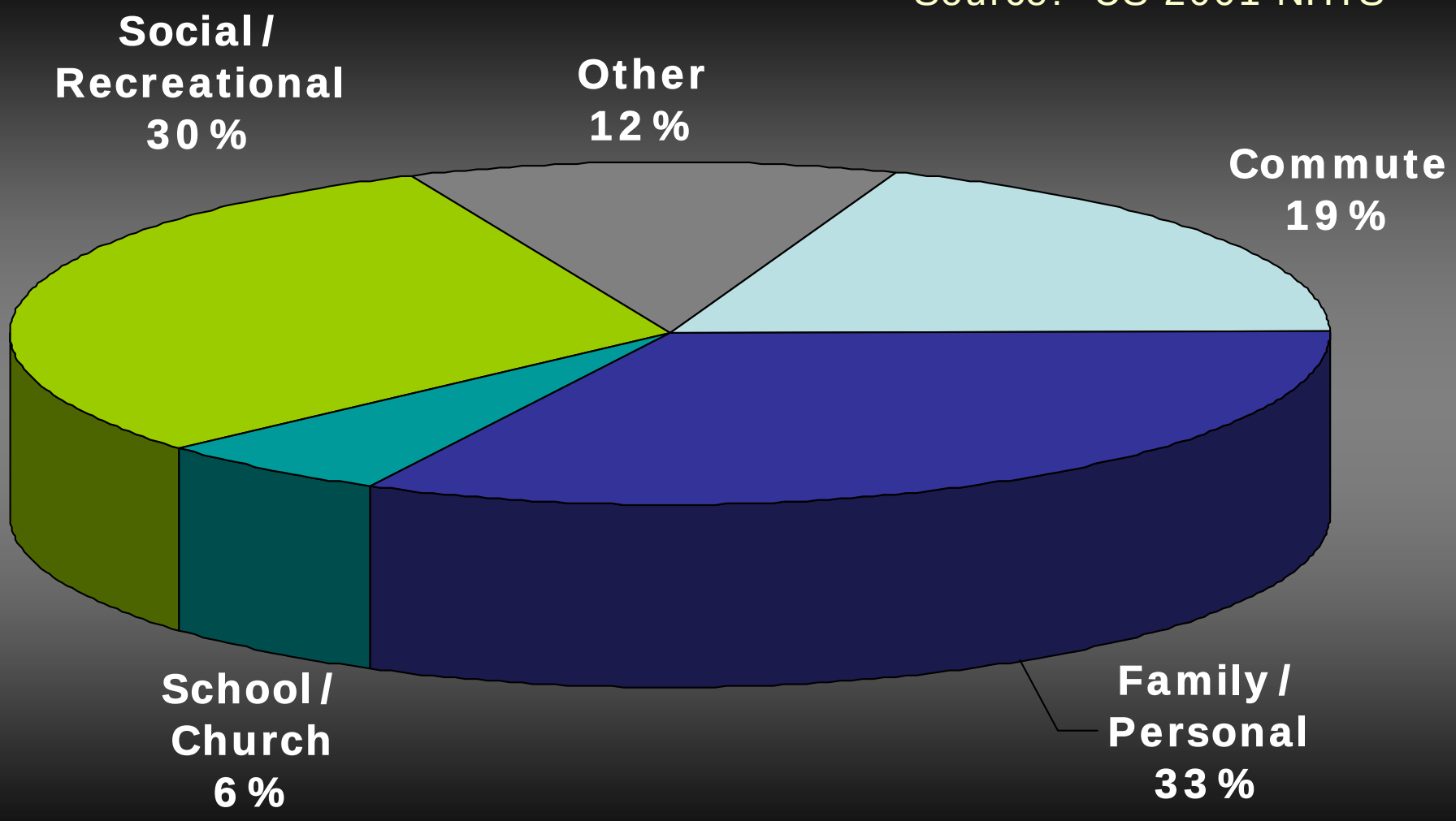
Daily Trips/Person

Source: US 2001 NHTS



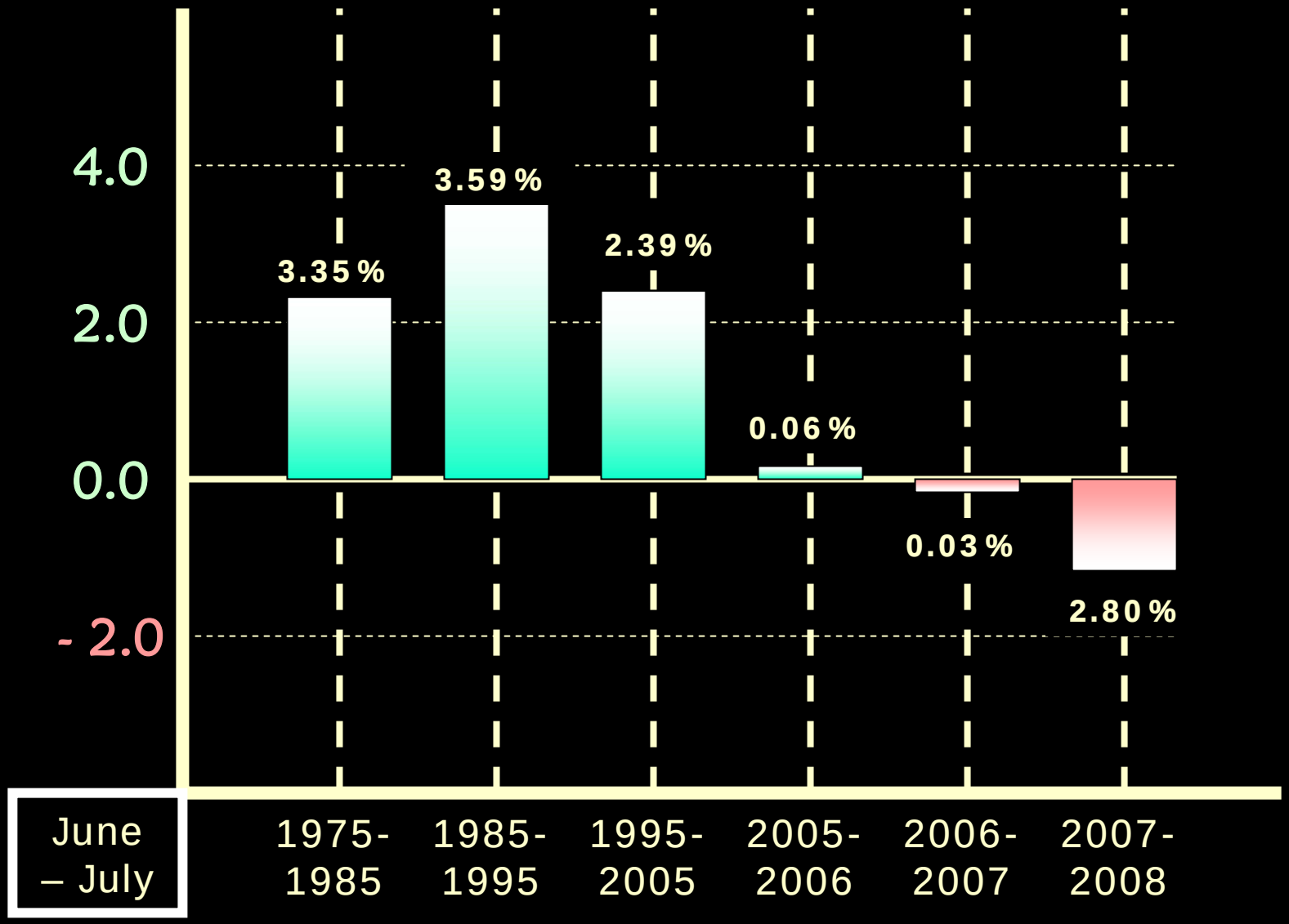
Daily Miles/Person

Source: US 2001 NHTS



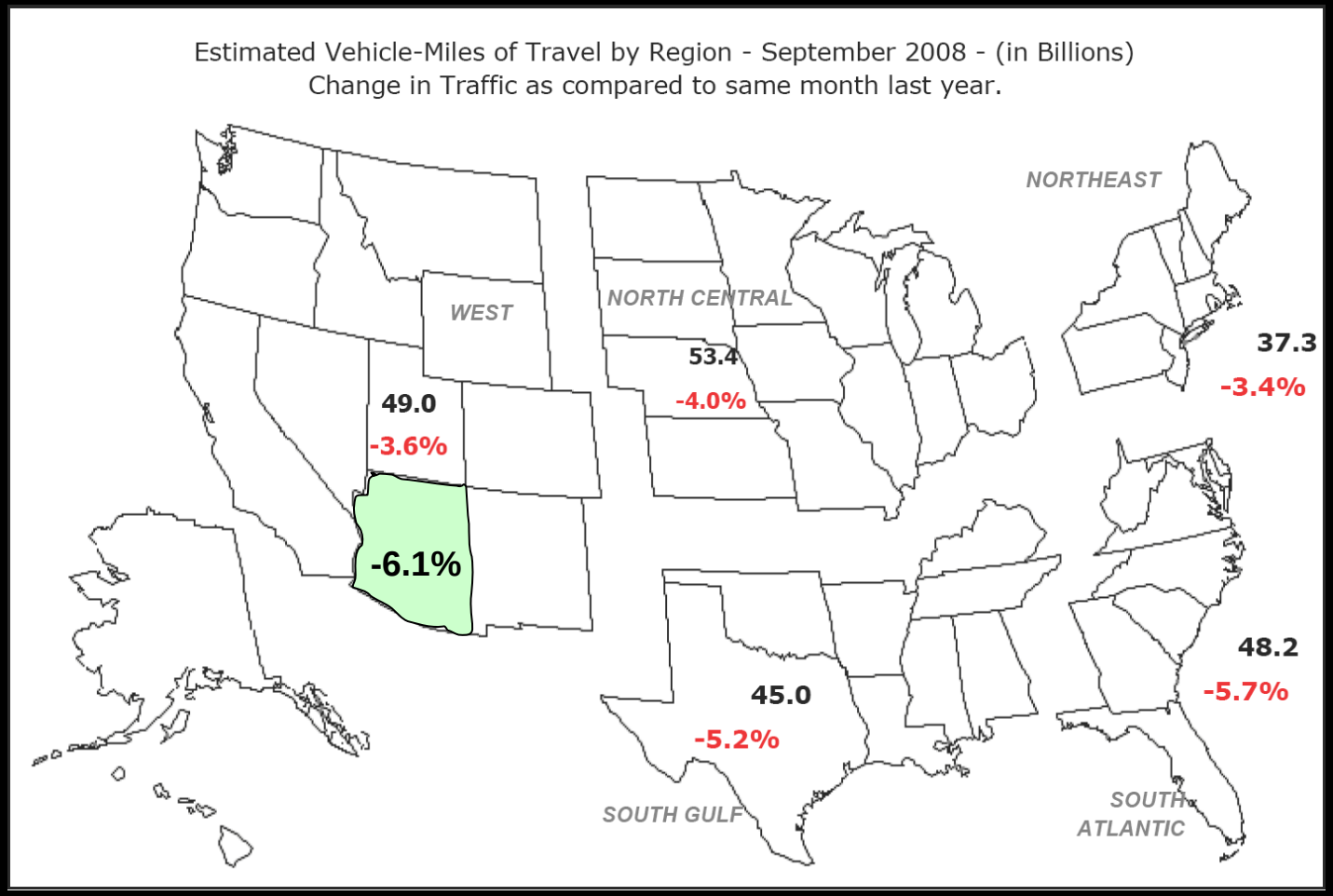
United States

Annual Rate of Change in VMT

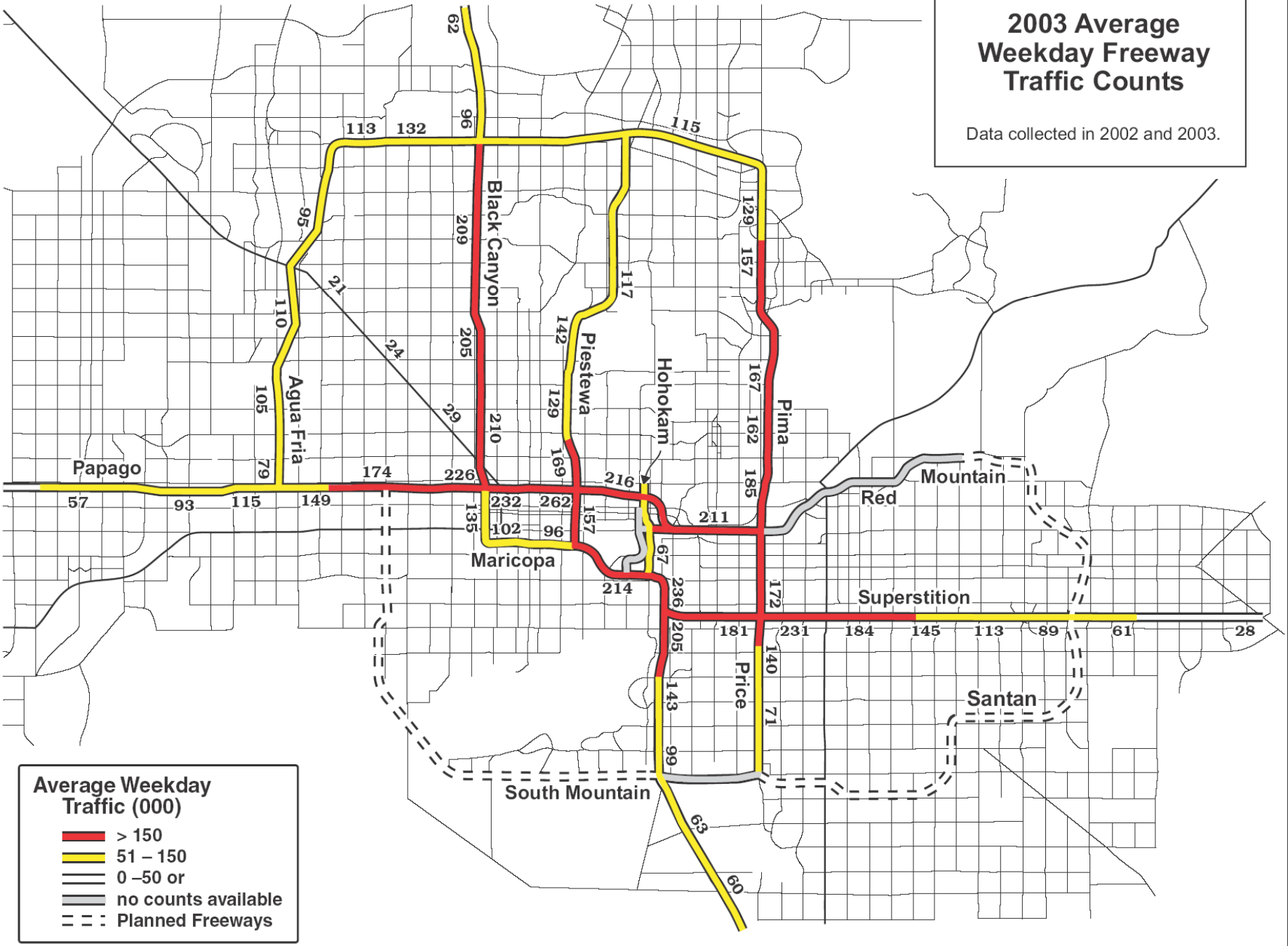


Monthly VMT Trend

September - September



Source: United States Department of Transportation, Traffic Volume Trends, October 2008


2003 Average Weekday Freeway Traffic Counts
Data collected in 2002 and 2003.
Black Canyon
Piestewa
Hohokam
Pima
Agua Fria
Papago
Maricopa
Red Mountain
Superstition
Price
Santan
South Mountain
62
96
113
132
115
95
209
129
157
117
21
110
24
205
142
167
105
29
210
129
162
79
169
216
185
174
226
57
93
115
149
232
262
135
102
96
157
211
67
214
236
172
181
231
184
145
113
89
61
28
205
140
143
71
99
63
60
Average Weekday Traffic (000)
> 150
51 – 150
0 –50 or
no counts available
Planned Freeways

Bottom Line: Congestion

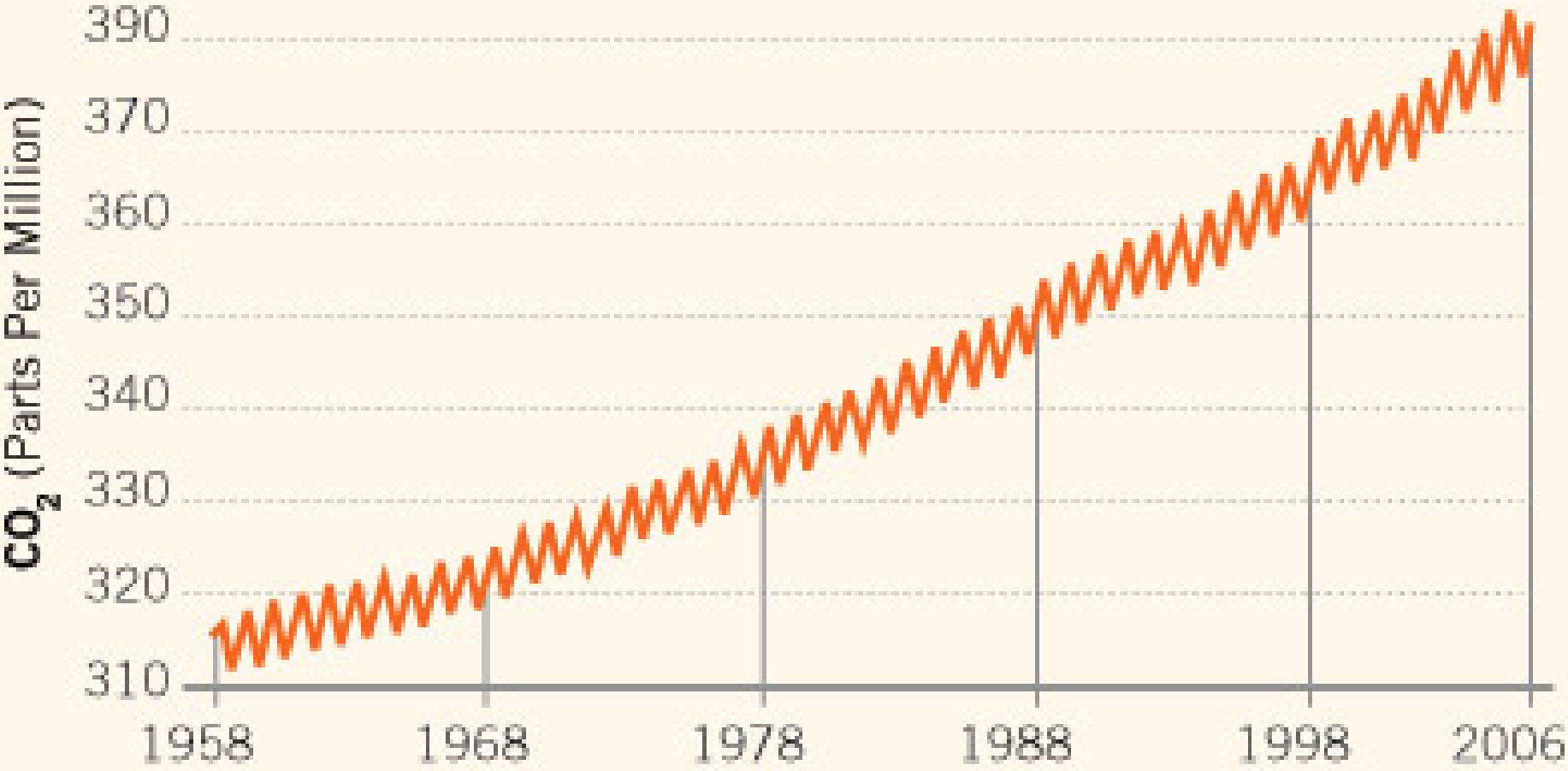
- Only about 1/3 of traffic growth has been caused by population growth
- “Project & Provide” planning was intended to respond to demand, but instead generated demand
- Highway expansion programs have not reduced congestion or delay
- The future will not be like the past

Climate Change

Transportation Trajectories

Charlier Associates, Inc.

The Keeling Curve

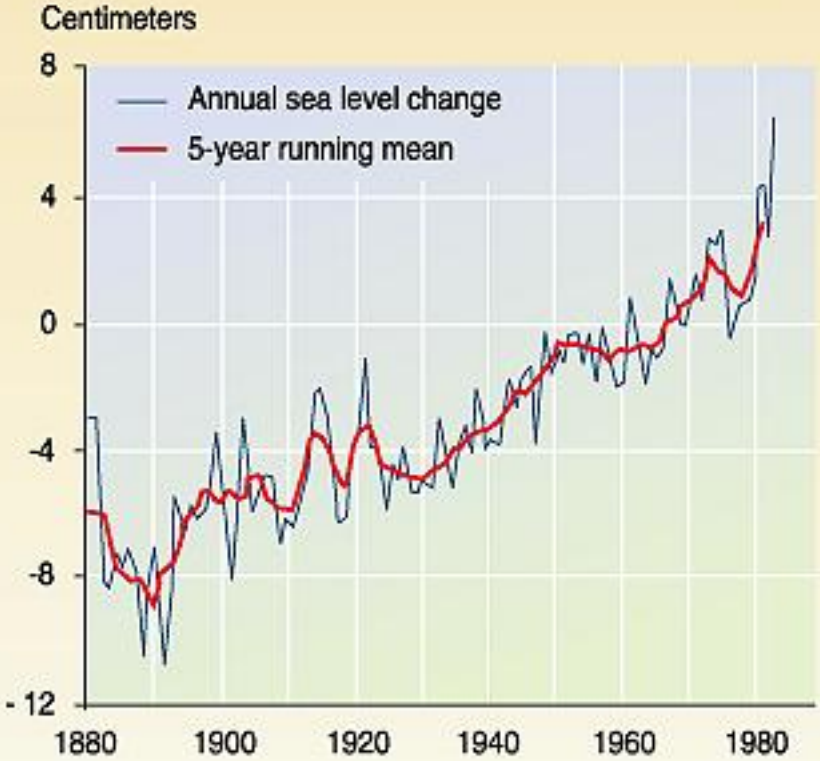


SOURCE: Scripps Institute of Oceanography

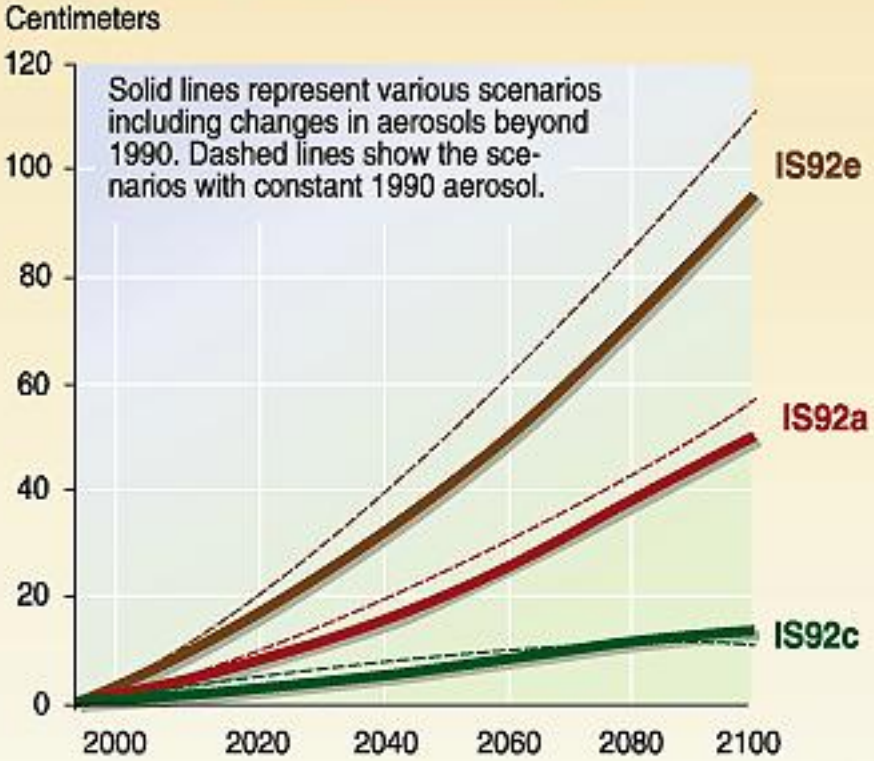
Receding Glaciers

Sea level rise due to global warming

Sea level rise over the last century



Sea level rise scenarios for 2100



GRID Arendal UNEP

GRAPHIC DESIGN : PHILIPPE REKACEWICZ

Source: Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge university press, 1996; Sea level rise over the last century, adapted from Gornitz and Lebedeff, 1987.

Basics: Climate Change 1

- Greenhouse gases associated with human activities are contributing to global warming with potentially serious consequences

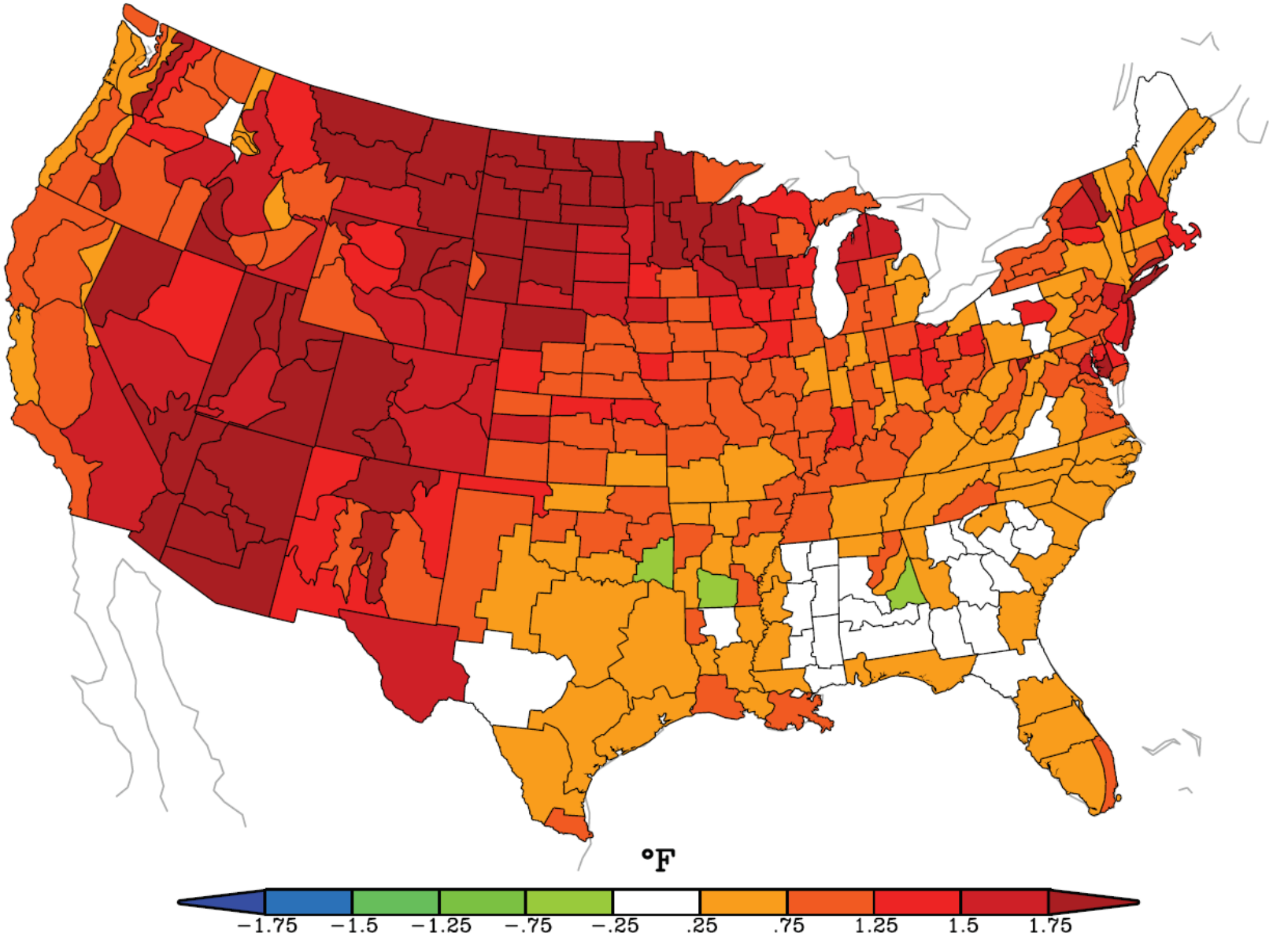
Basics: Climate Change 2

- Scientific consensus:
  - ✓We must limit global temperature increases to no more than 2° to 3° C
  - ✓To do that we must cut GHG emissions by 60% to 80% below 1990 levels by 2050

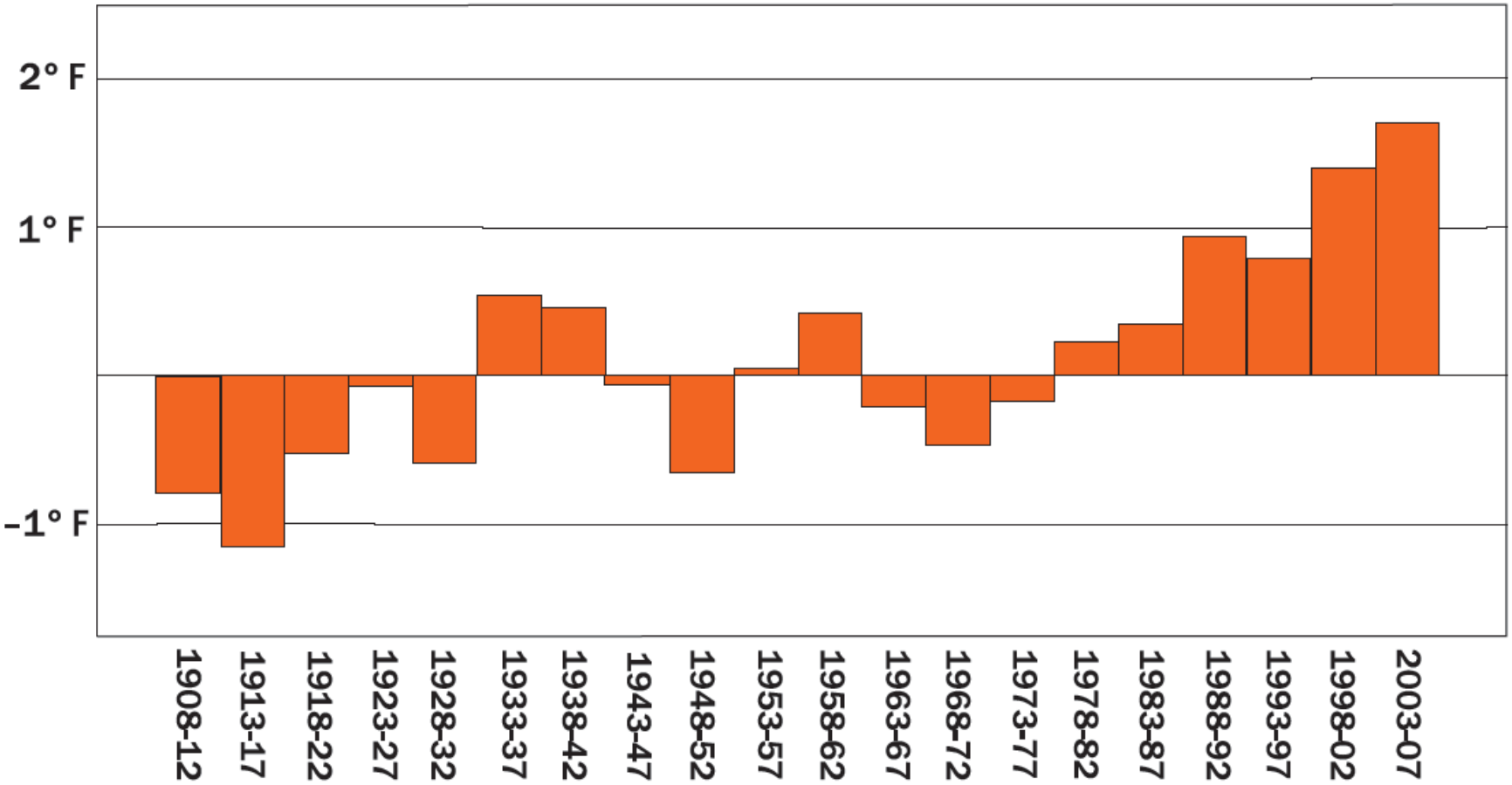
Basics: Climate Change 3

- GHGs persist in the atmosphere – we do not start over each year
- If we hesitate to begin reducing GHG emissions, the amount we have to reduce in later years increases EXPONENTIALLY
- What we do now is more important than what we do in 2050

Figure 3. The Interior West: Epicenter of Warming in the Contiguous U.S. (2000 - 2007 Average Temperatures Compared to 20th Century Averages)

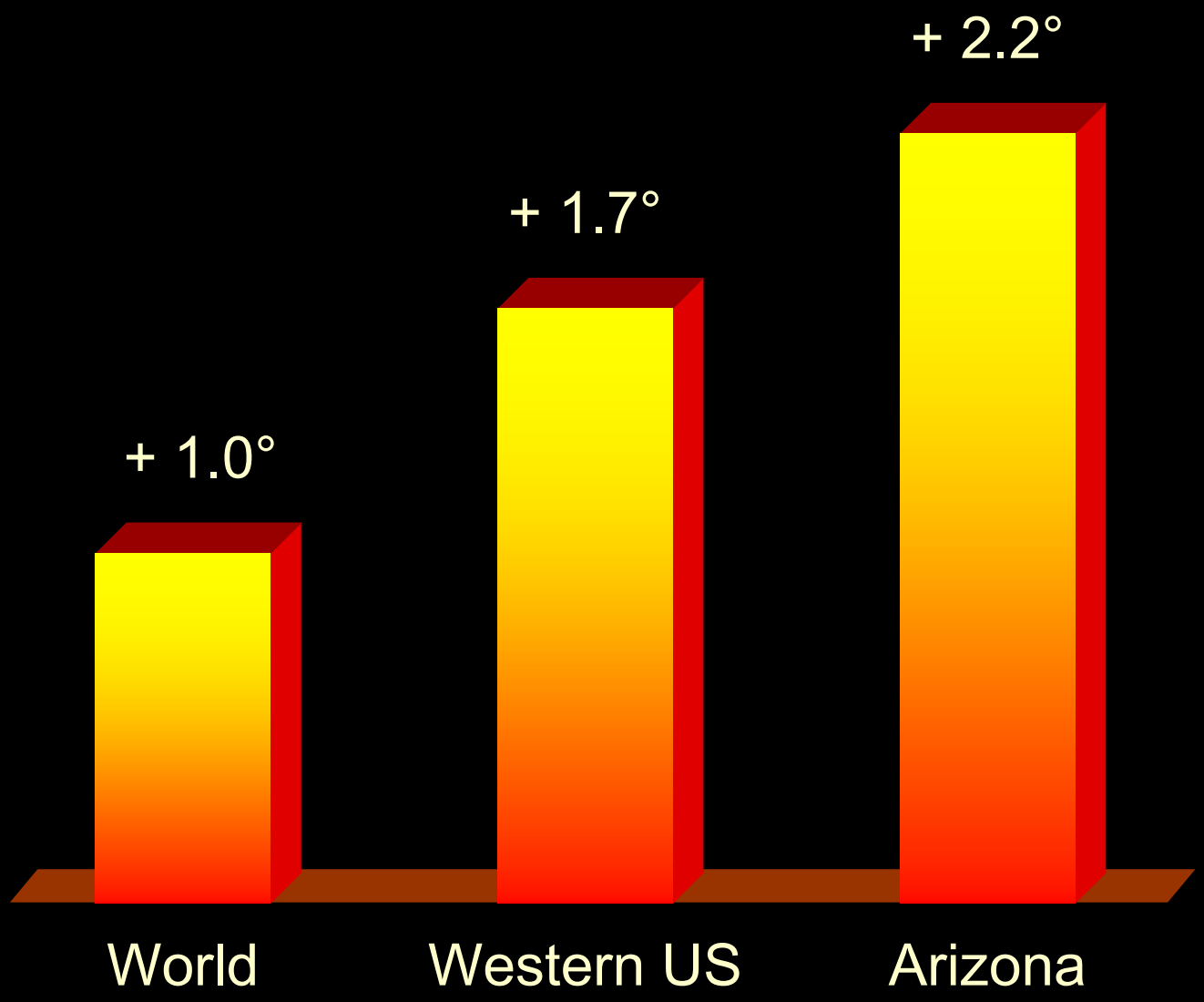


A Warmer West: Five-year Average Temperatures in 11 Western States Compared to 20th Century Average

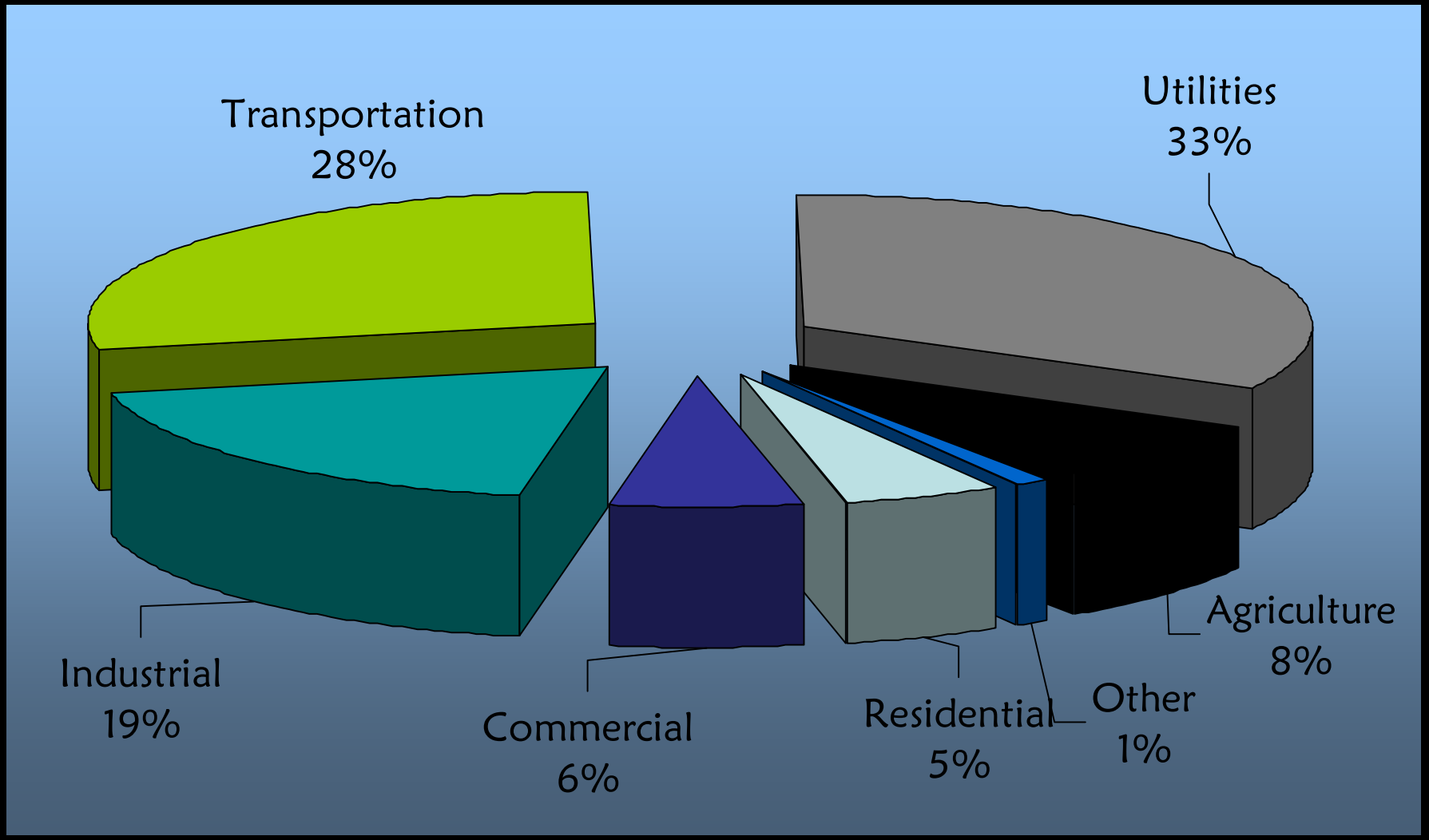


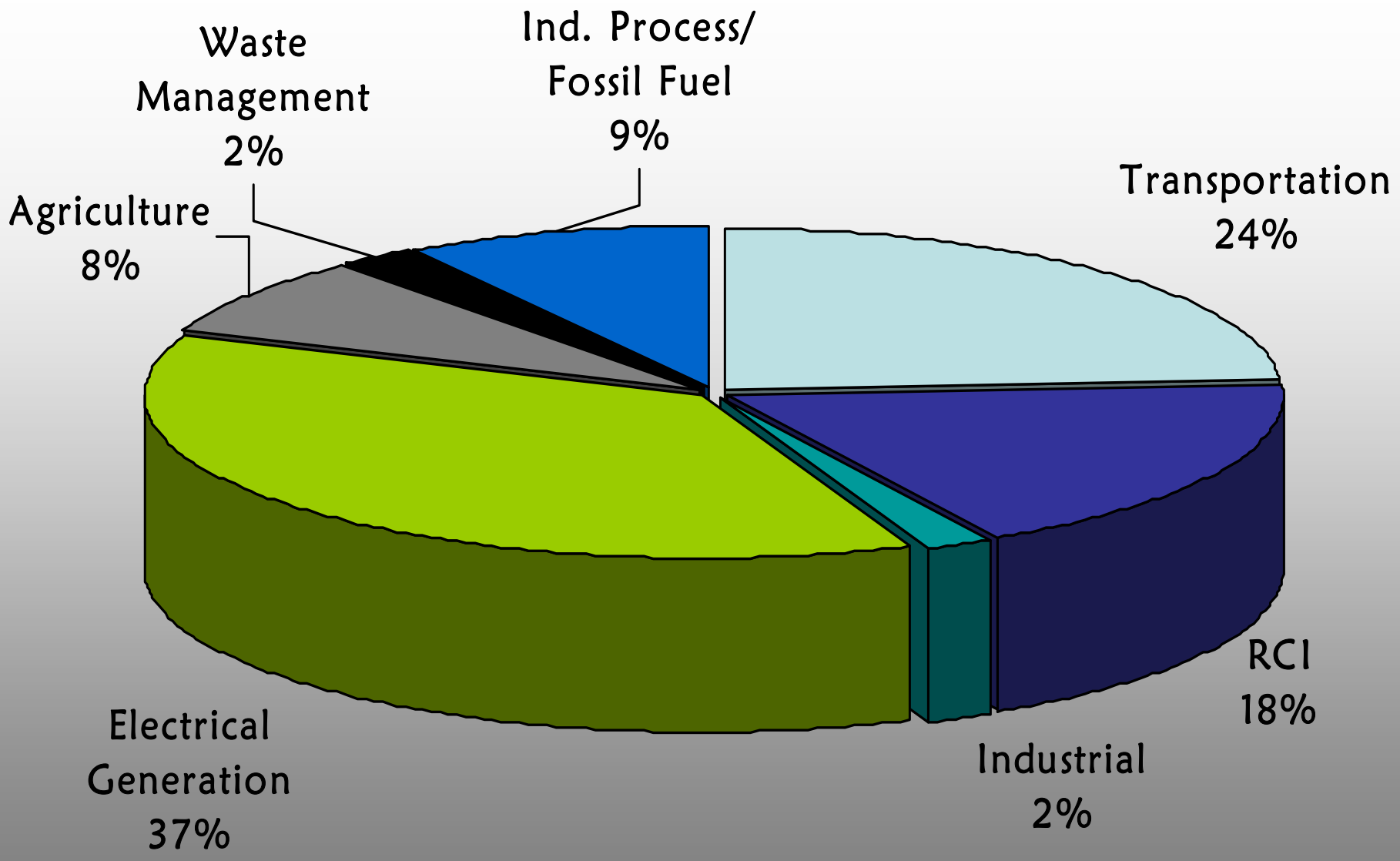
Data from the National Oceanic and Atmospheric Administration's climate division series. Analysis by the Rocky Mountain Climate Organization.

Ambient Temperature Change
1908 – 2007 (° F)

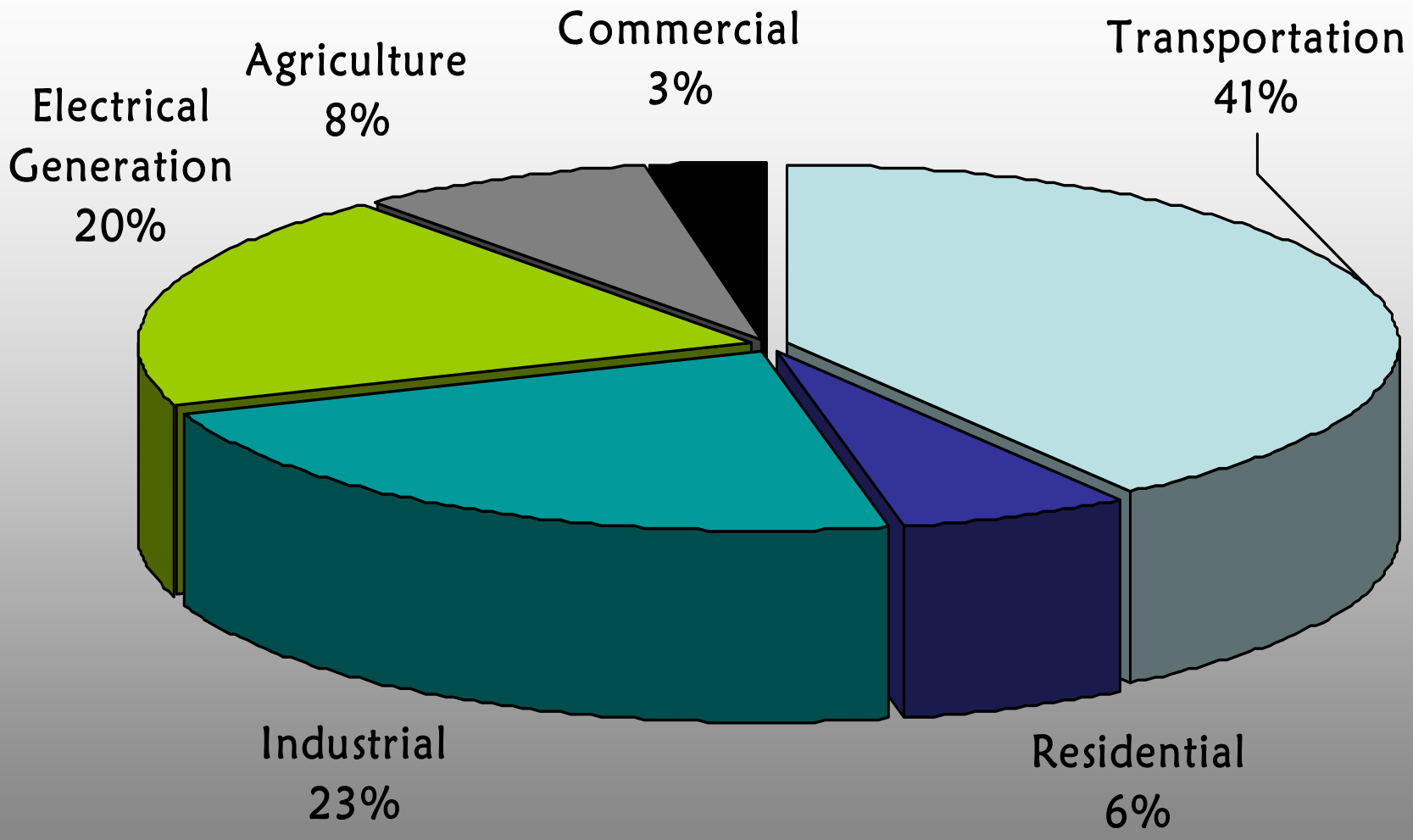


U.S. Greenhouse Gases

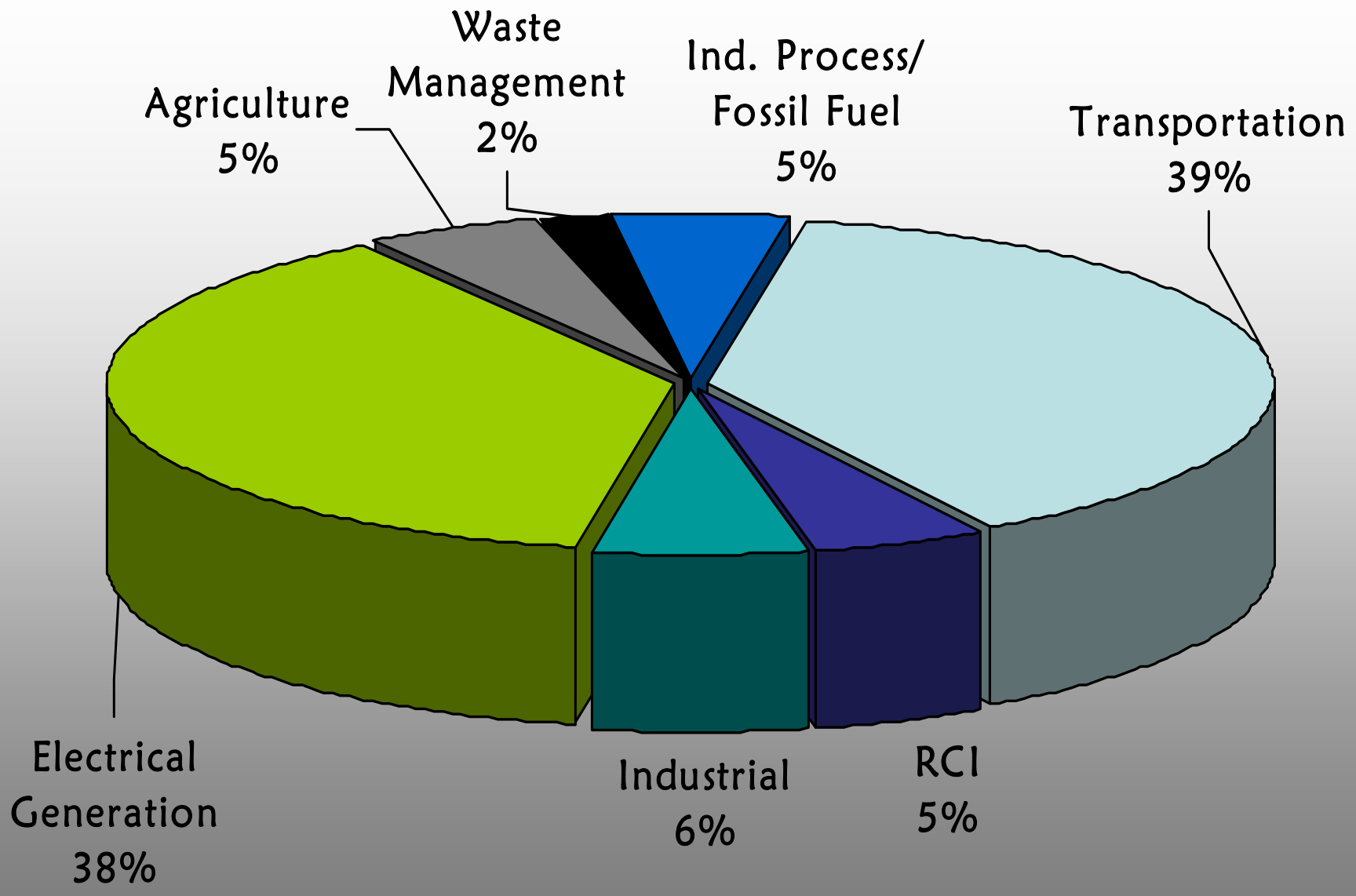



Waste Management 2%
Ind. Process/ Fossil Fuel 9%
Agriculture 8%
Transportation 24%
RCI 18%
Industrial 2%
Electrical Generation 37%

Colorado


Commercial
3%
Transportation
41%
Agriculture
8%
Electrical
Generation
20%
Industrial
23%
Residential
6%

California

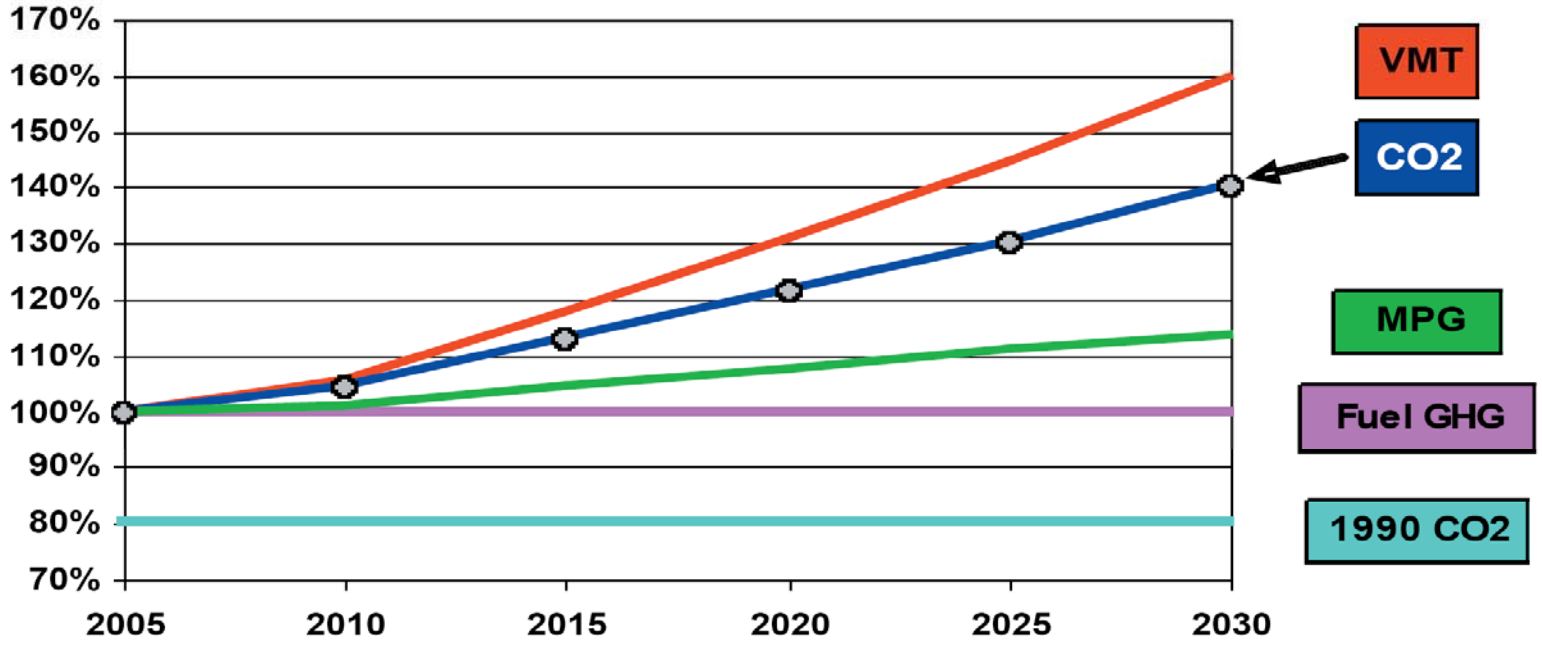

Waste Management 2%
Ind. Process/ Fossil Fuel 5%
Agriculture 5%
Transportation 39%
Electrical Generation 38%
Industrial 6%
RCI 5%

Arizona

Motor Vehicles & CO_2

Figure 0-2

Projected Growth in CO_2 Emissions from Cars and Light Trucks



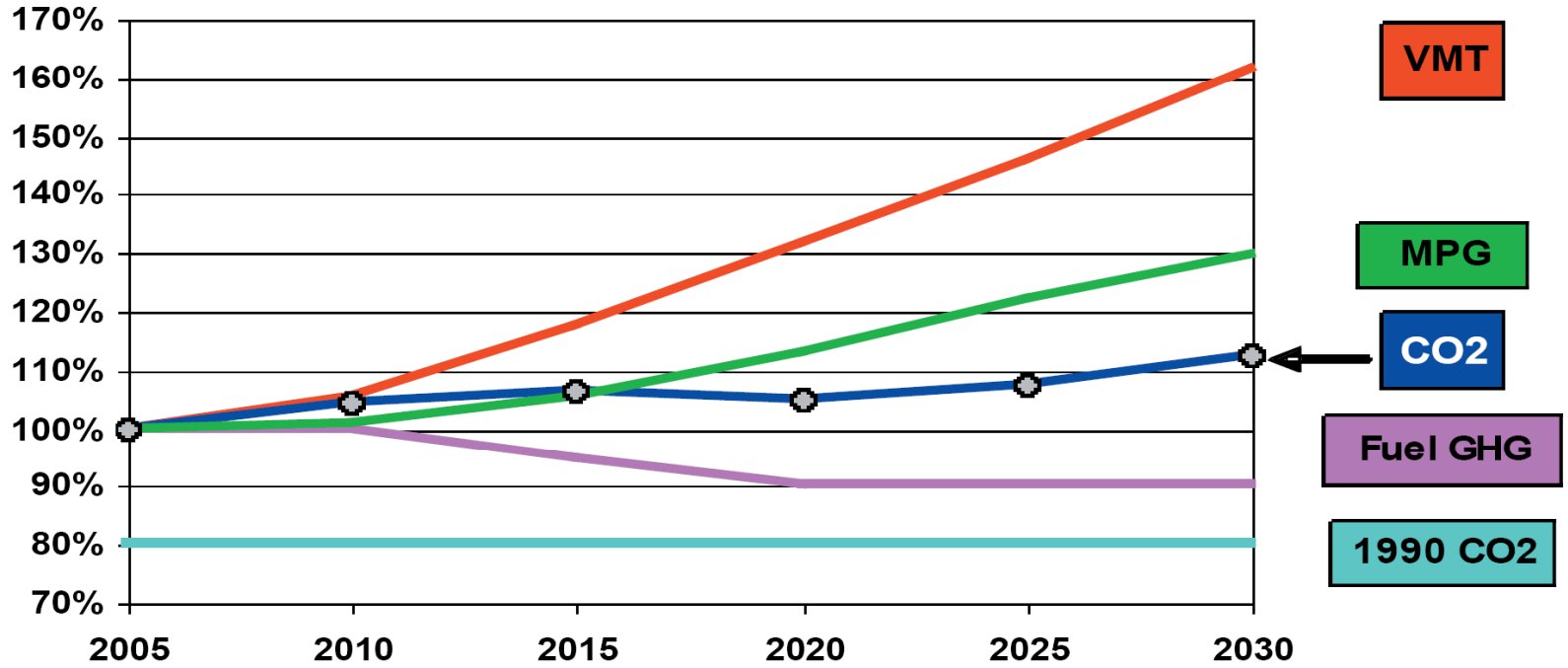
Source: EIA 2007.

Center for Clean Air Policy

Vehicle Technology Alone Will Not Solve the Problem

Projected Growth in CO_2 Emissions from Cars and Light Trucks Assuming Stringent Nationwide Vehicle and Fuel Standards*

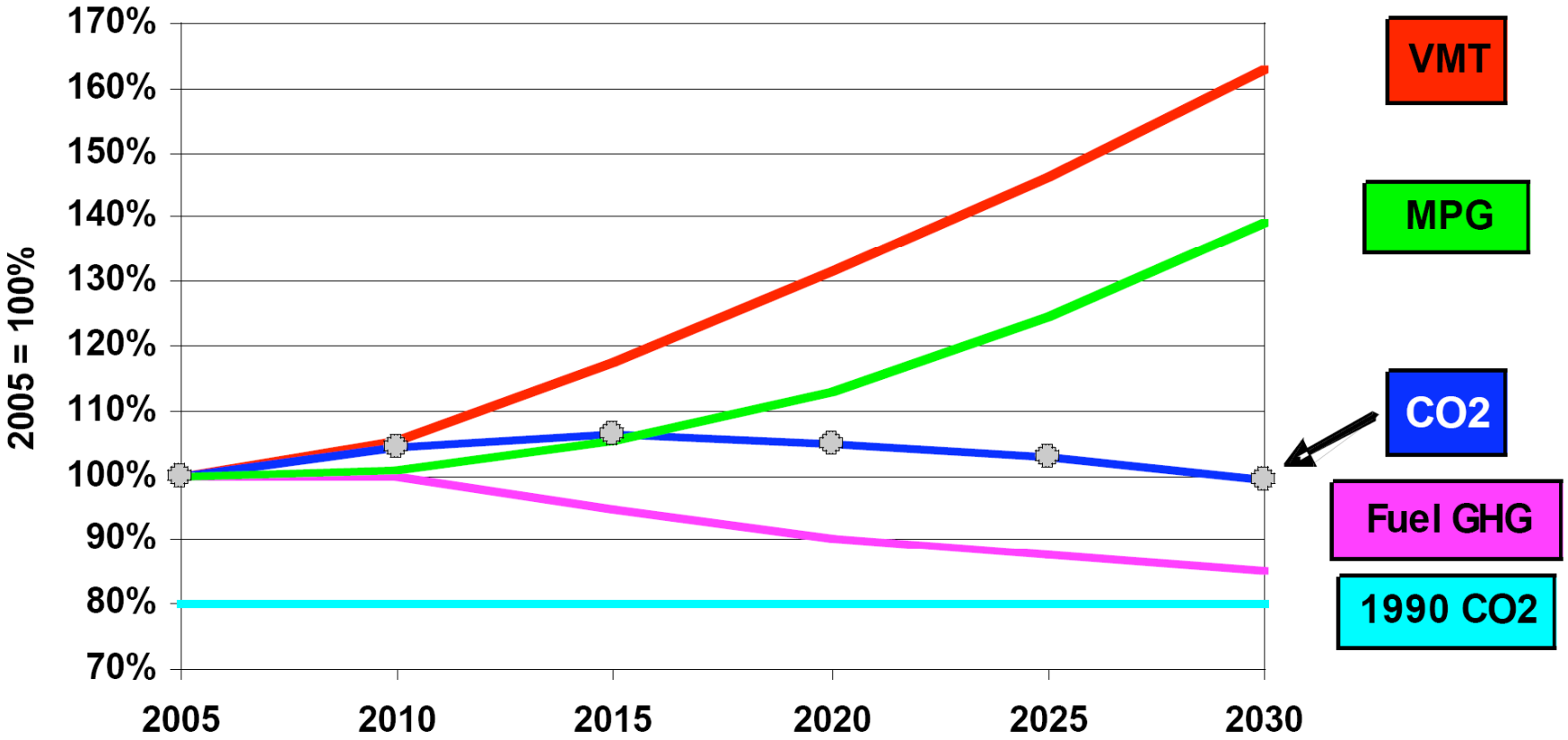
*With Senate CAFE levels -- New Passenger Vehicle Fuel Economy of 35 mpg in 2020 and California Low Carbon Fuel Standard of -10% in 2020 applied nationally.



Sources: VMT: EIA with 10% rebound MPG: US Senate, Fuels: C.

Center for Clean Air Policy

...Even With Very Stringent Standards

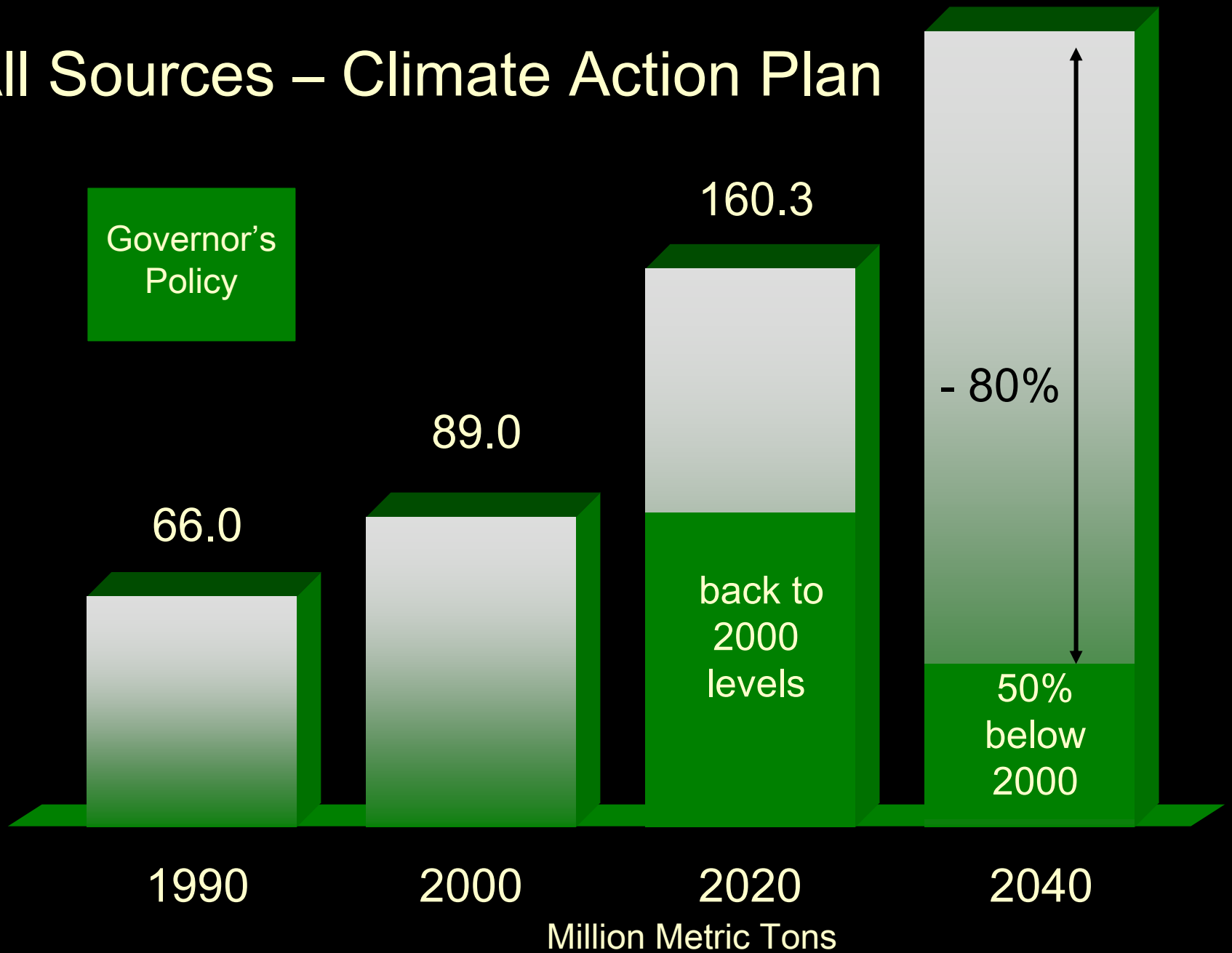


Sources: VMT: EIA with 10% rebound, MPG & Fuel: Trend Extrapc

Center for Clean Air Policy

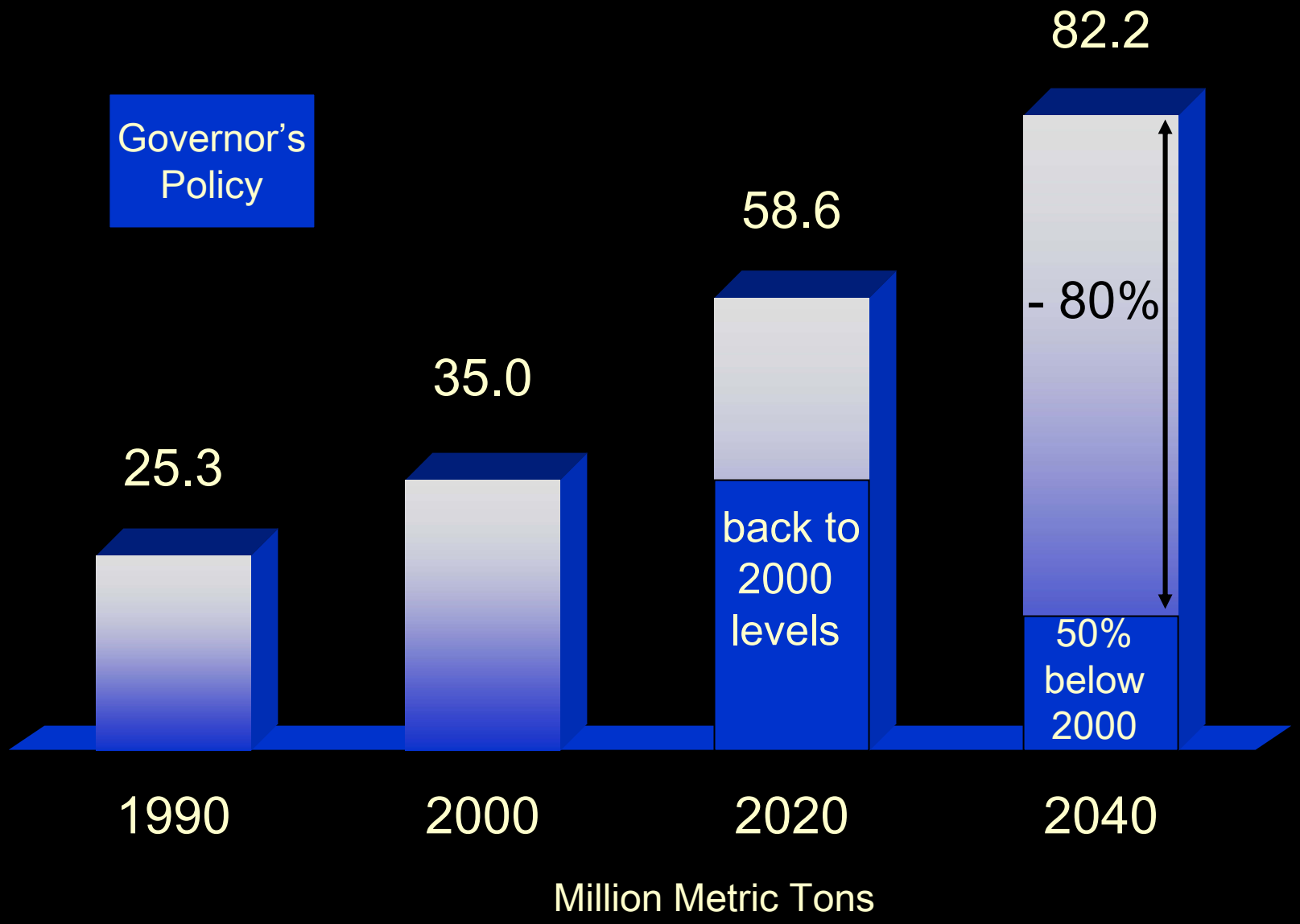
Arizona Gross Greenhouse Gas Emissions

All Sources – Climate Action Plan

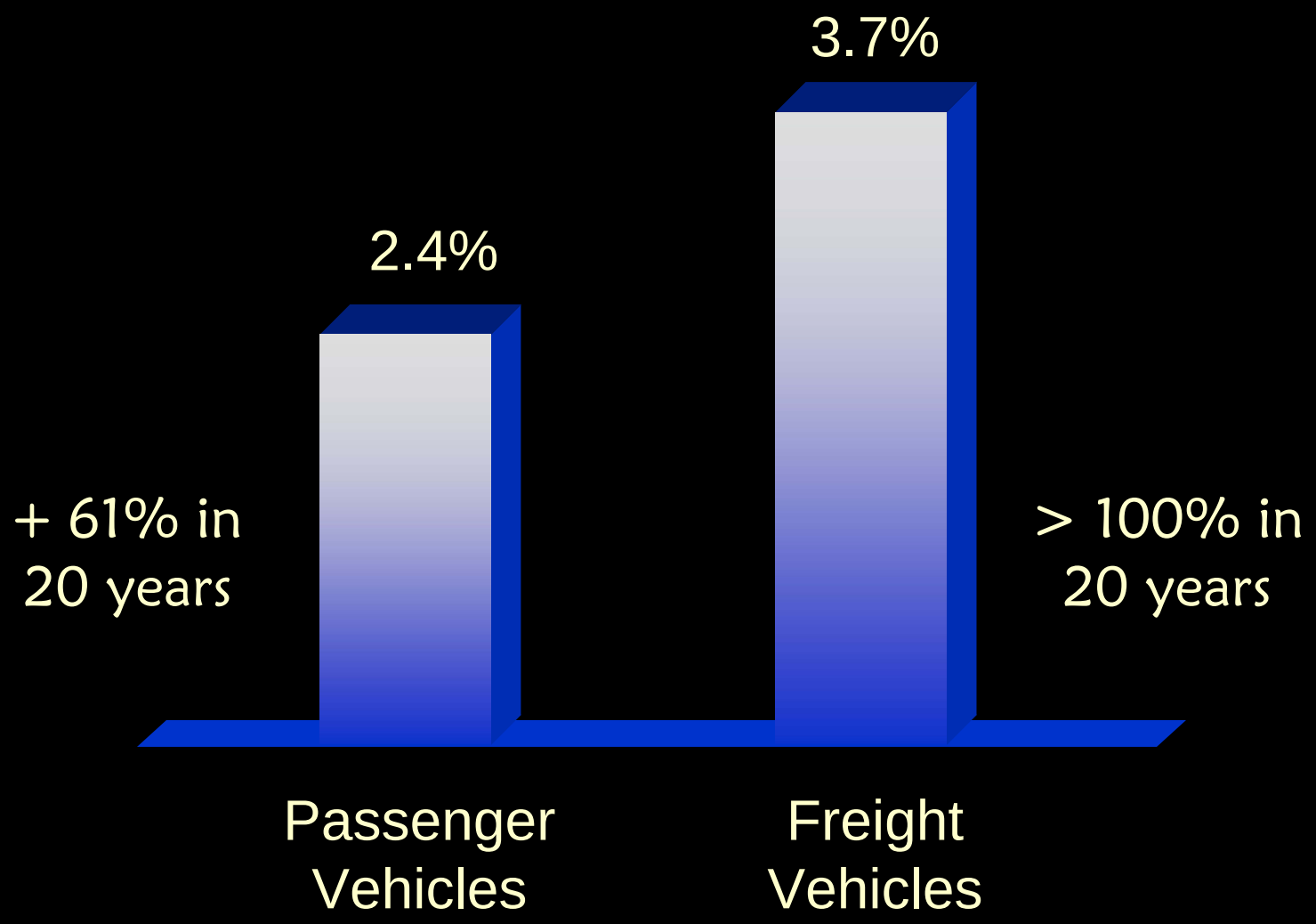


Arizona Gross Greenhouse Gas Emissions

Transportation Sources



Annual Growth Rate to 2020: AZ Vehicle Miles of Travel



Bottom Line: Climate Change

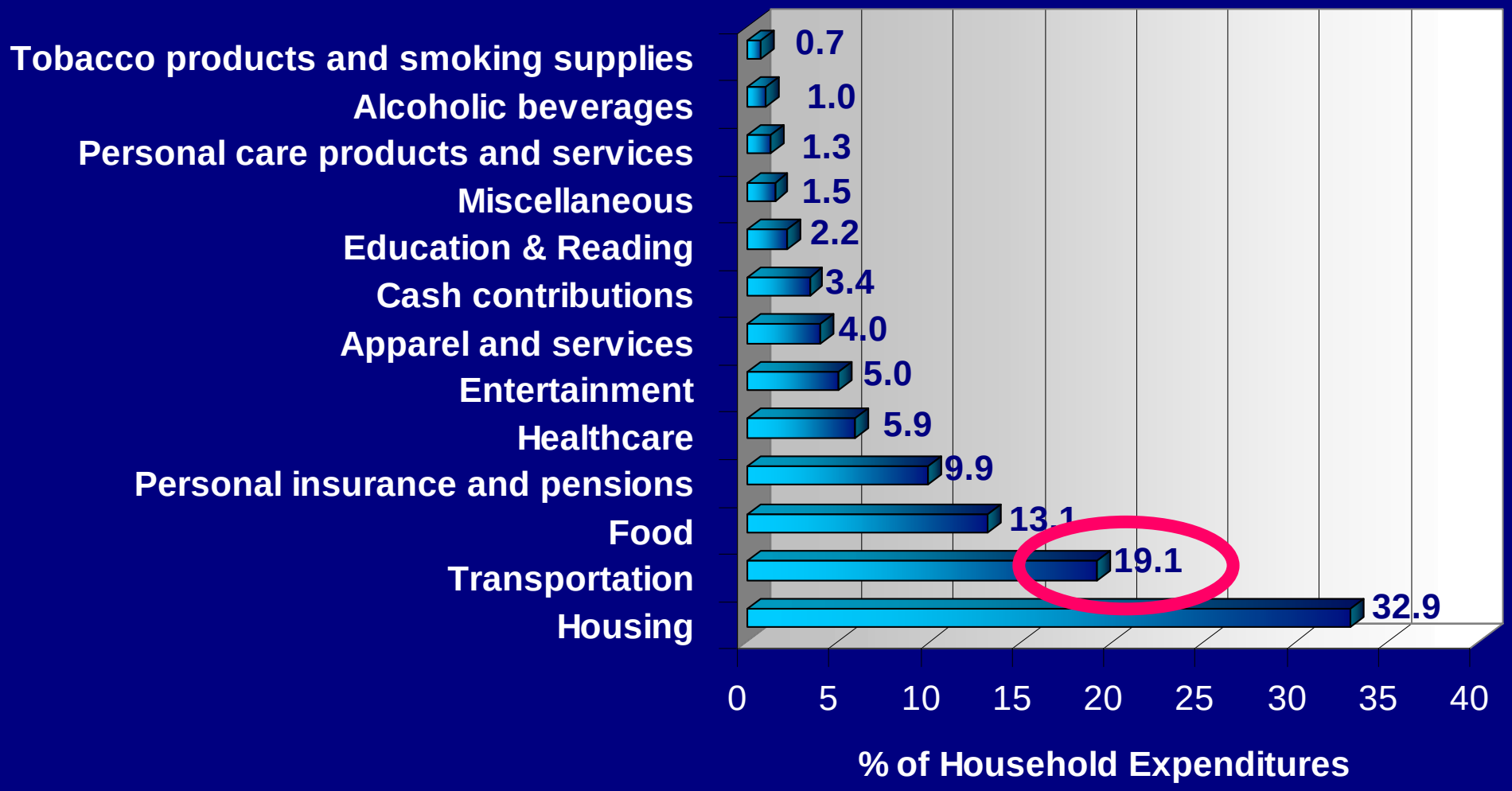
- Arizona will need to reduce emissions of transportation greenhouse gases
- The required reduction cannot be achieved through alternative fuels or new technologies
- Success will require reducing per capita VMT
- Delay in starting will add to the cost and will put the state at a competitive disadvantage nationally

Family Budgets

Transportation Trajectories

Charlier Associates, Inc.

Household Expenditures



A HEAVY LOAD:

The Combined Housing and Transportation Burdens of Working Families

Center for Housing Policy

October 2006

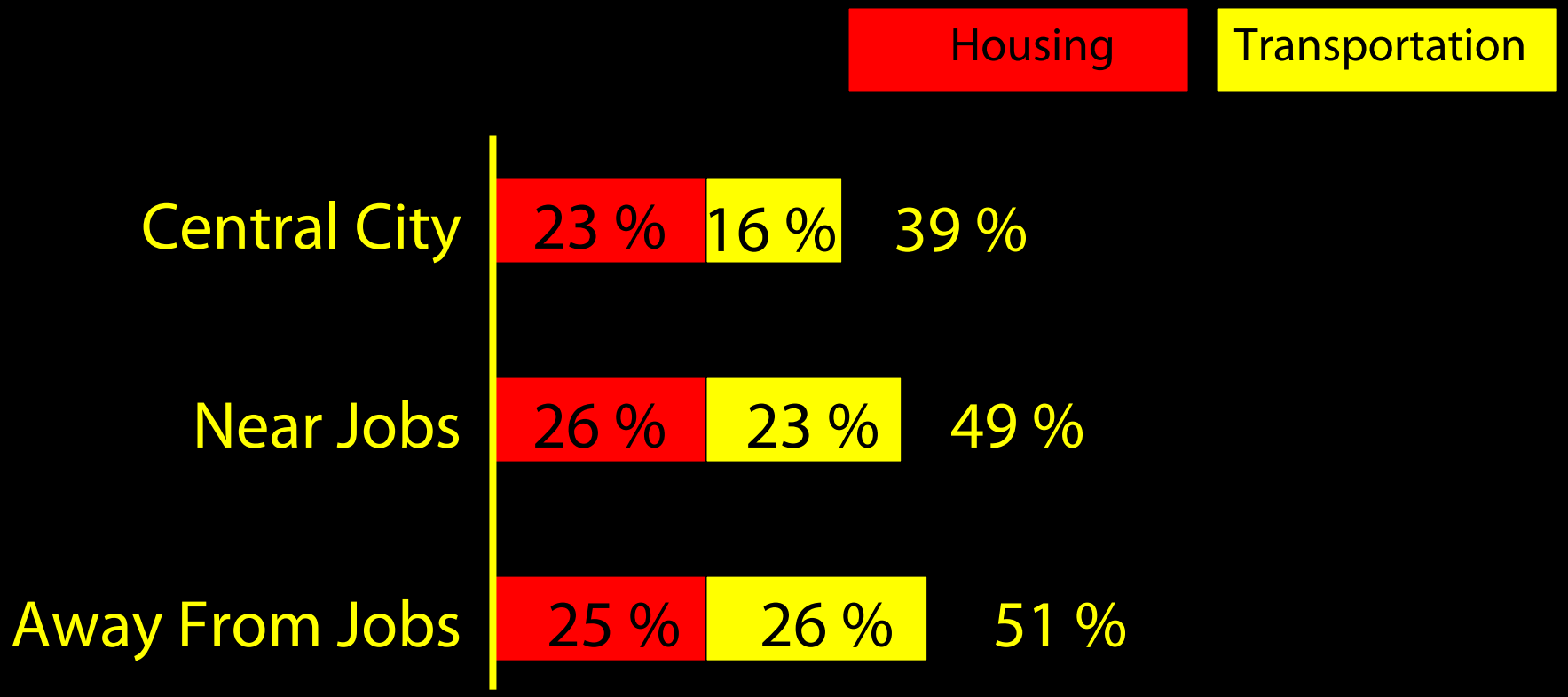
TYPICAL HOUSEHOLD BUDGET IN 28 METROPOLITAN AREAS

(Expenses as a share of income)

	All Households	Working Families Incomes $20,000 – $50,000
Housing	27.4%	27.7%
Transportation	20.2%	29.6%
Food	10.6%	15.1%
Healthcare	4.7%	7.7%

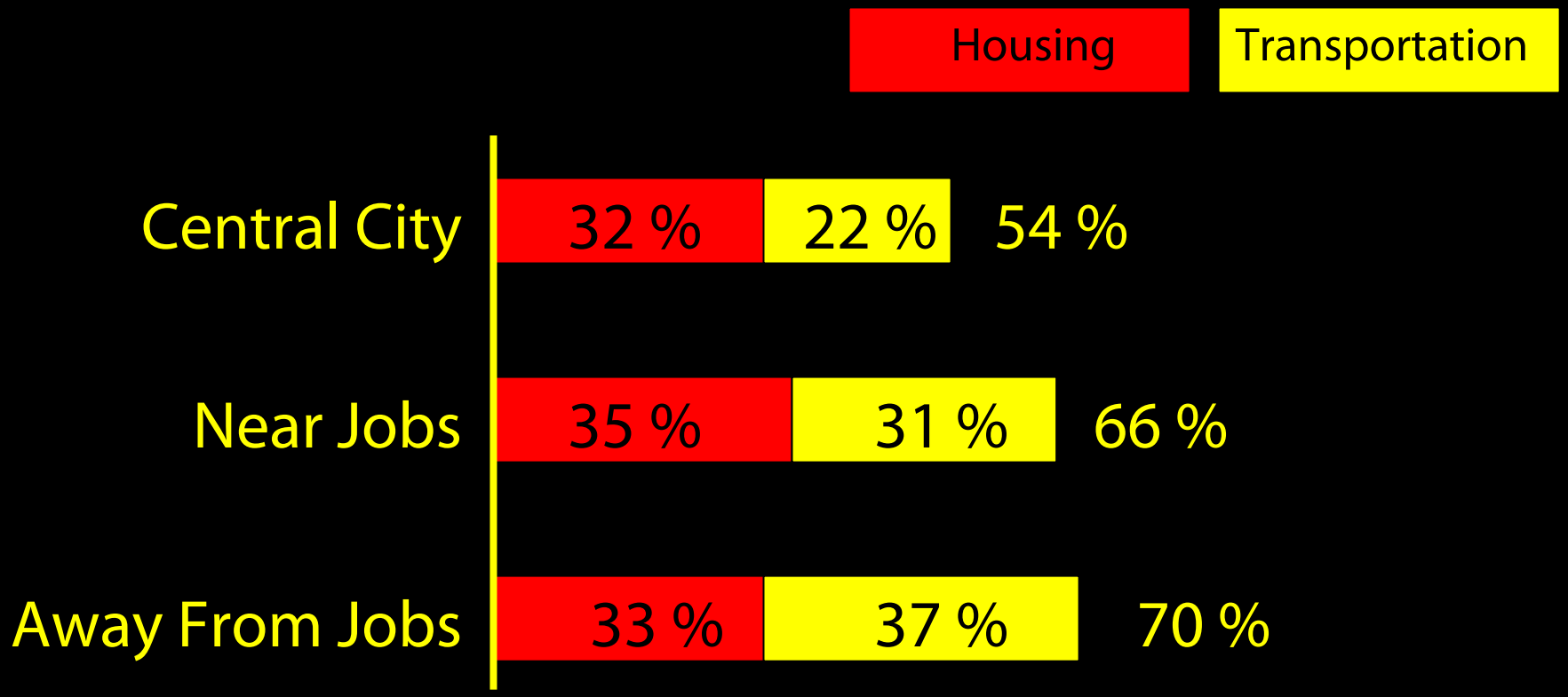
Share of Family Income Spent On Housing & Transportation

Family Income = $35,000 - $50,000

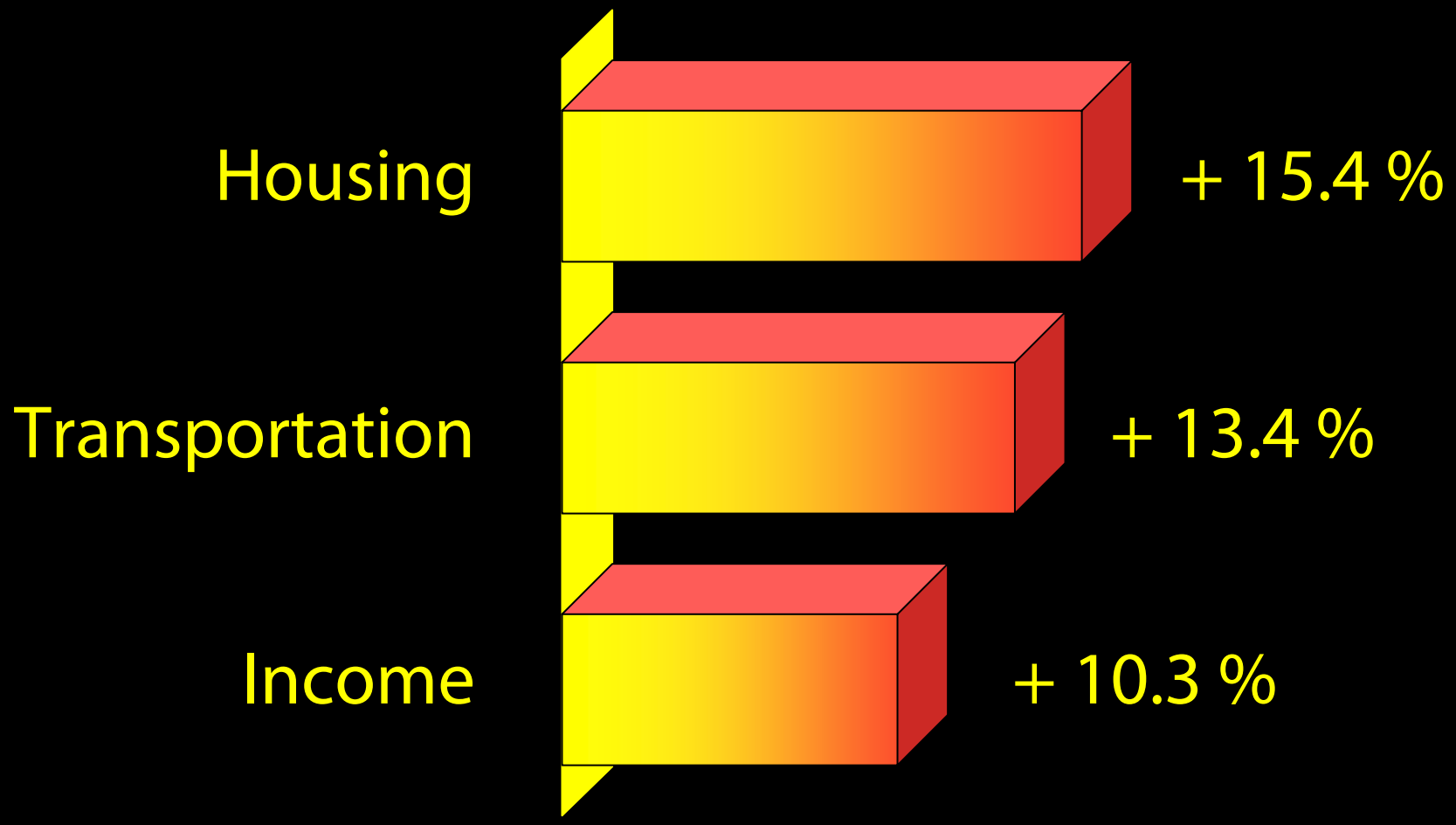


Share of Family Income Spent On Housing & Transportation

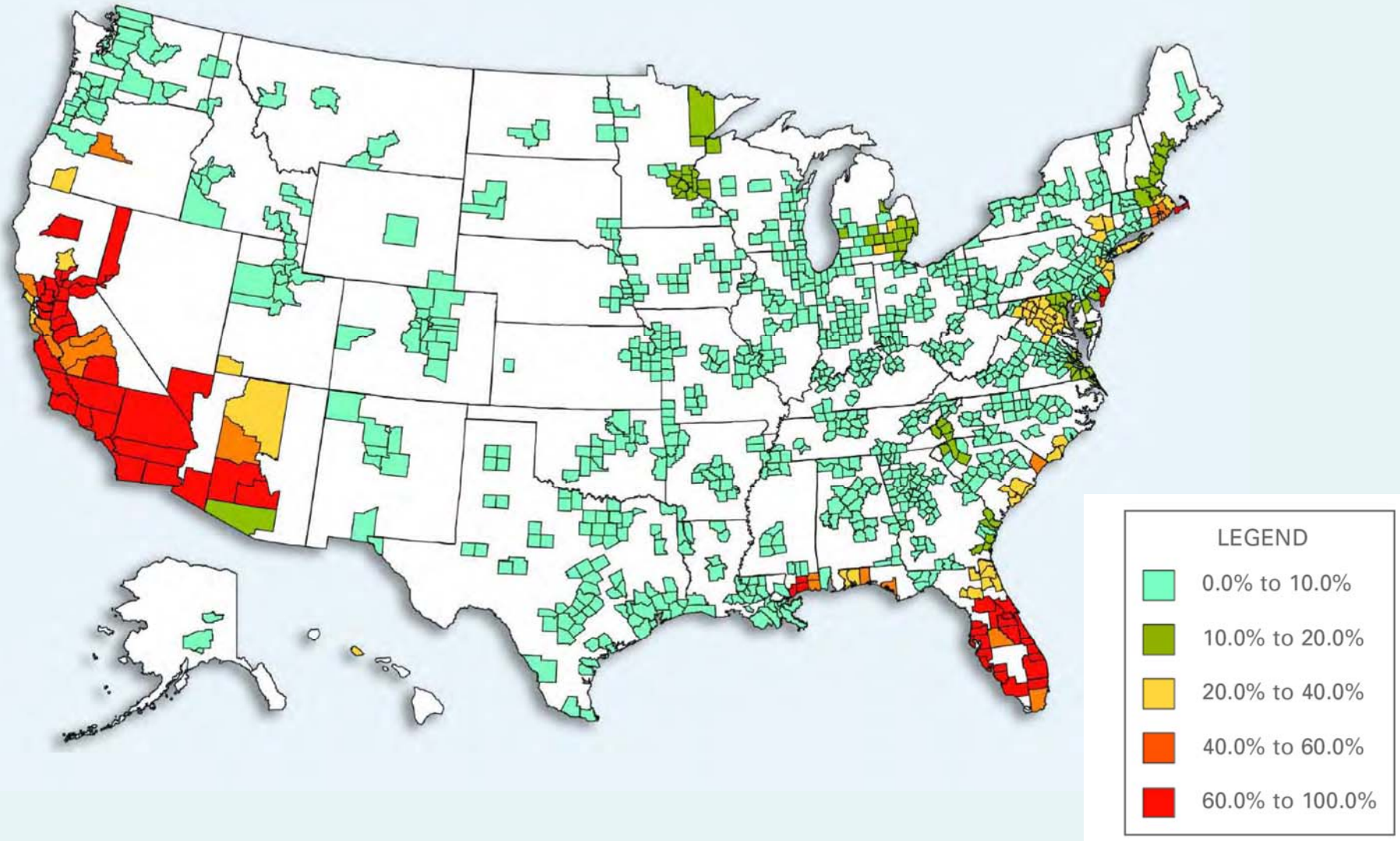
Family Income = $20,000 - $35,000



Family Costs Rising Faster Than Incomes (2000 – 2005)



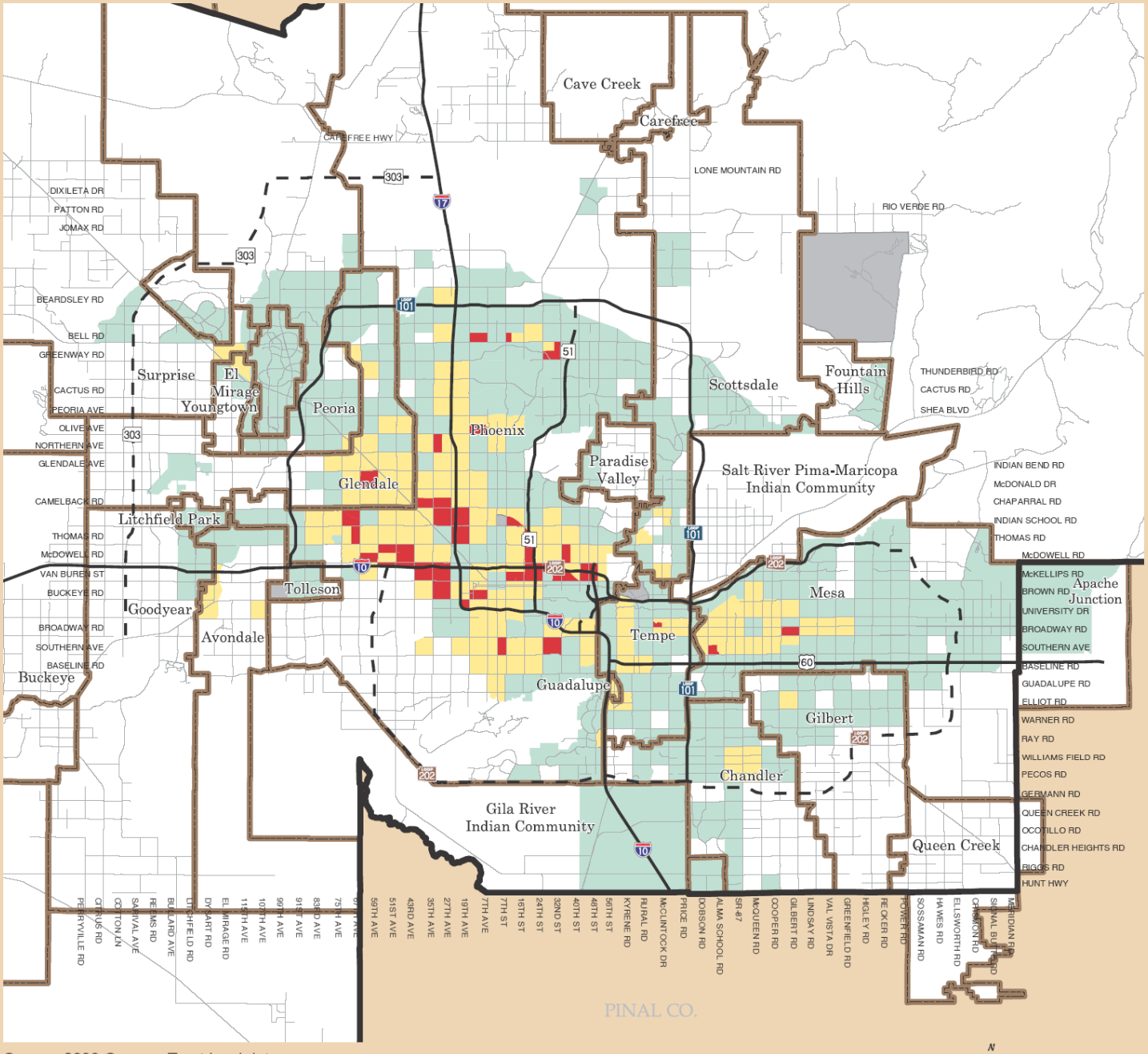
Geographic Distribution of
HOUSE PRICE RISK



MARICOPA ASSOCIATION of GOVERNMENTS

FAMILIES IN POVERTY

(Year 2000 Census)
Maricopa Region, Arizona

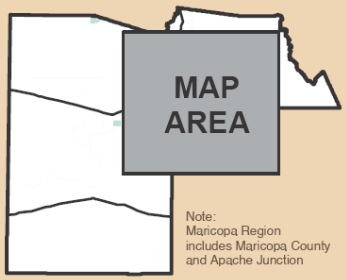


Families in Poverty per Square Mile
(Maricopa County Average = 6.68)

- Less than 7
- 7 to 100
- 100 to 400
- More than 400
- Insufficient Data
- Municipal Planning Area
- Maricopa County
- Major Roads

Freeways/Expressways

- Existing
- Planned



Note:
Maricopa Region includes Maricopa County and Apache Junction

Source: 2000 Census, Tract level data

Map Prepared by Maricopa Association of Governments

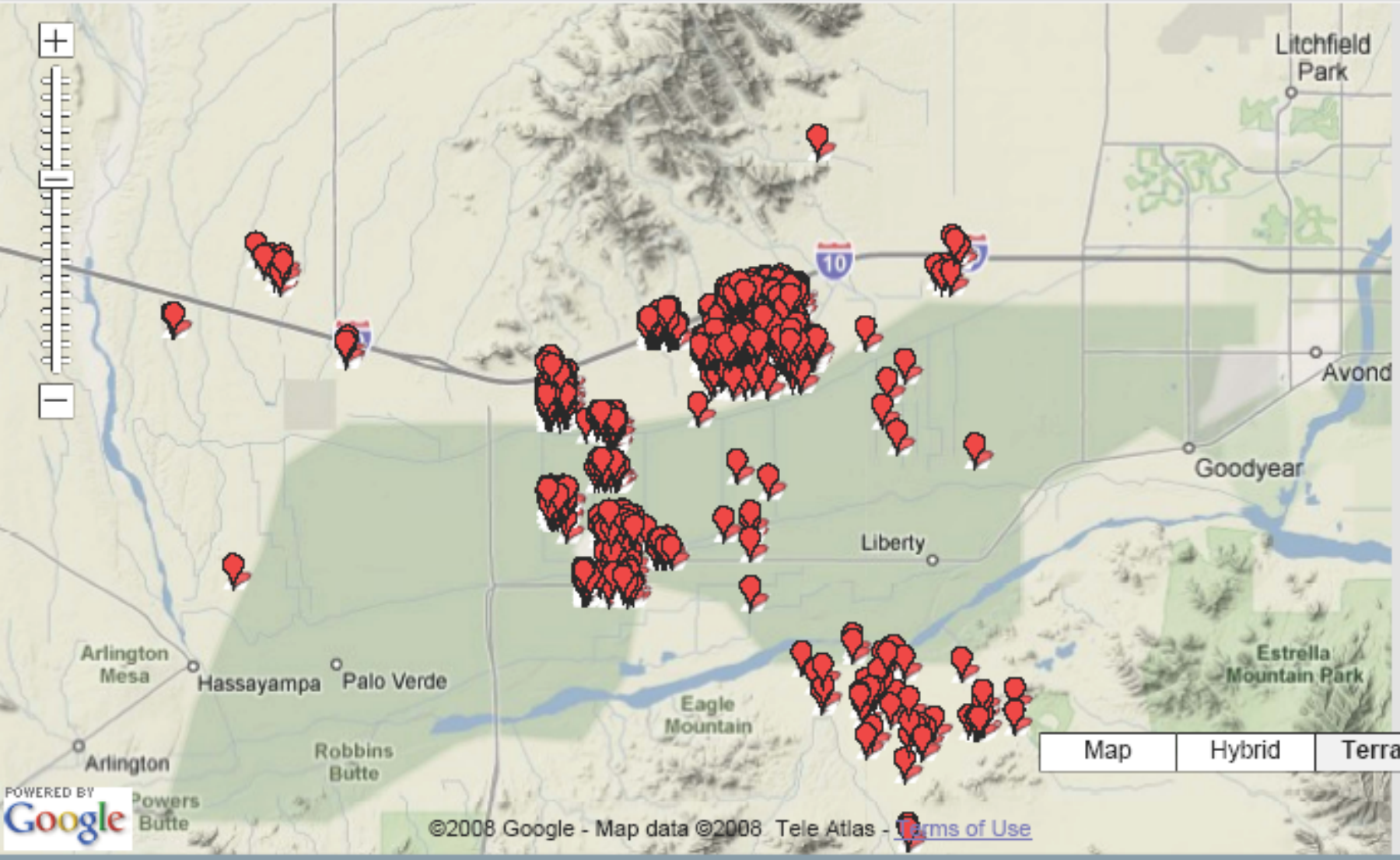
December 2002

g:\dev\maps\Census2000\poverty\85x11\pov_families_dens_tr00.mxd

FORECLOSURES BY ZIP CODE

azcentral.com

Show controls | FAQ | Credits



What do Households Need from a Transportation System?

They need access:

- Access to jobs
- Access to housing they can afford
- Access to school, church, friends
- Access to shopping & services

They do not need VMT:

- To drive long miles/day
- To expend $$ on imported petroleum

Bottom Line: Family Budgets

- Cost of living is out of line with household income for many families
- Transportation costs are the 1st or 2nd largest cost in family budgets
- The market for exurban sprawl has shrunk… and may be gone entirely
- Where will Phoenix house its growth?

Personal Health

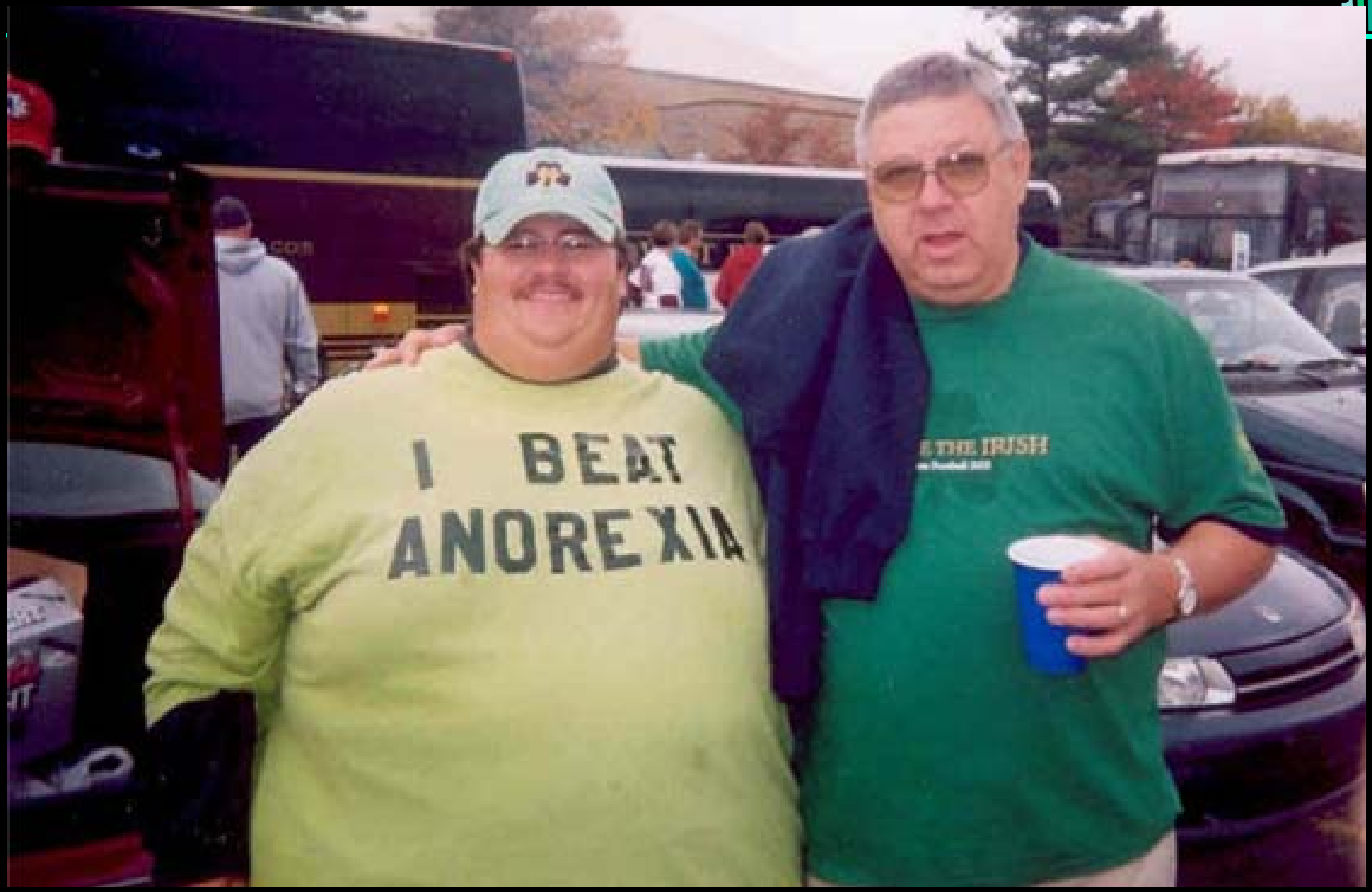
Transportation Trajectories

Charlier Associates, Inc.

CAR
SERVICE

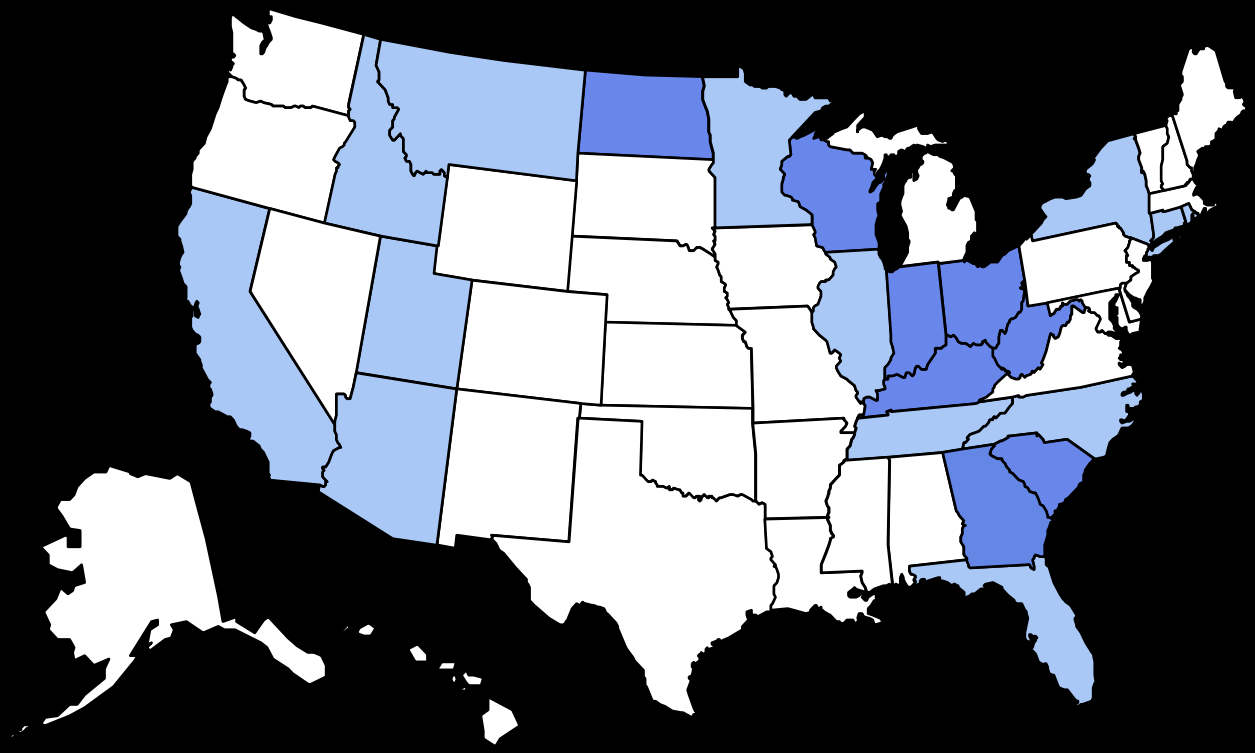
Human History

We cannot escape our DNA…



…no matter how hard we try

1985 Obesity Trends* Among U.S. Adults



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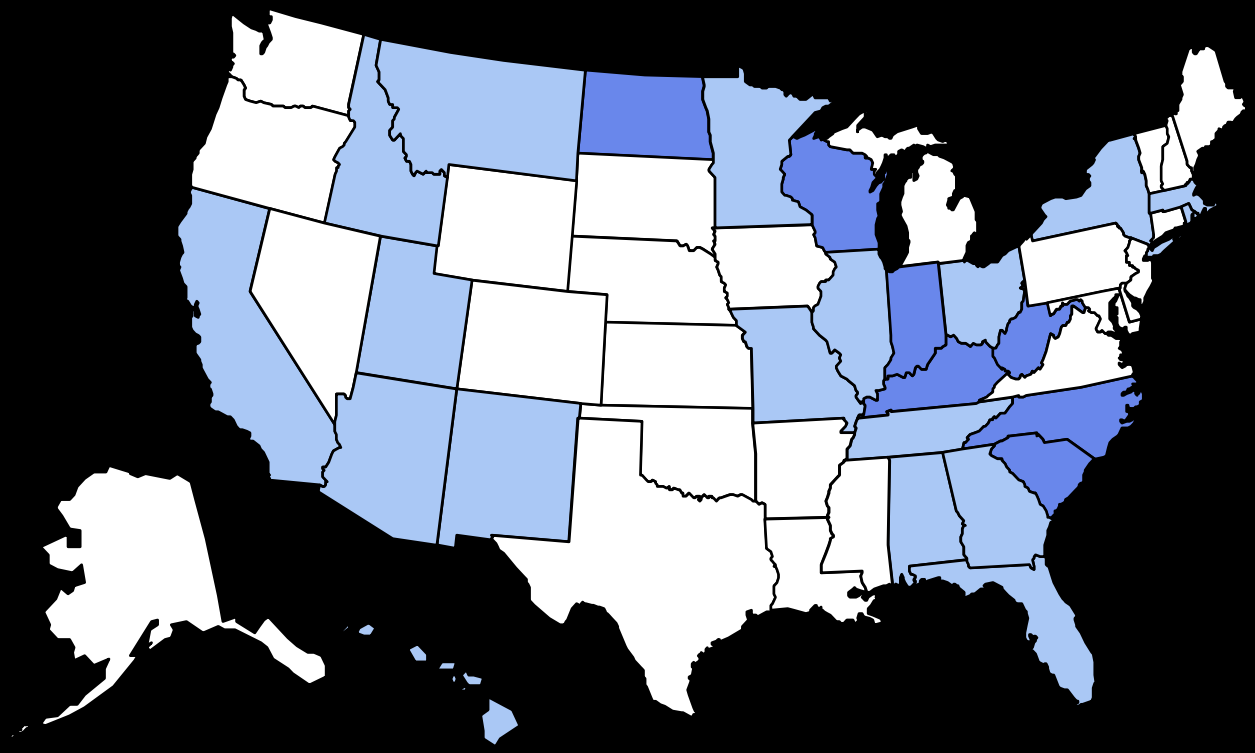

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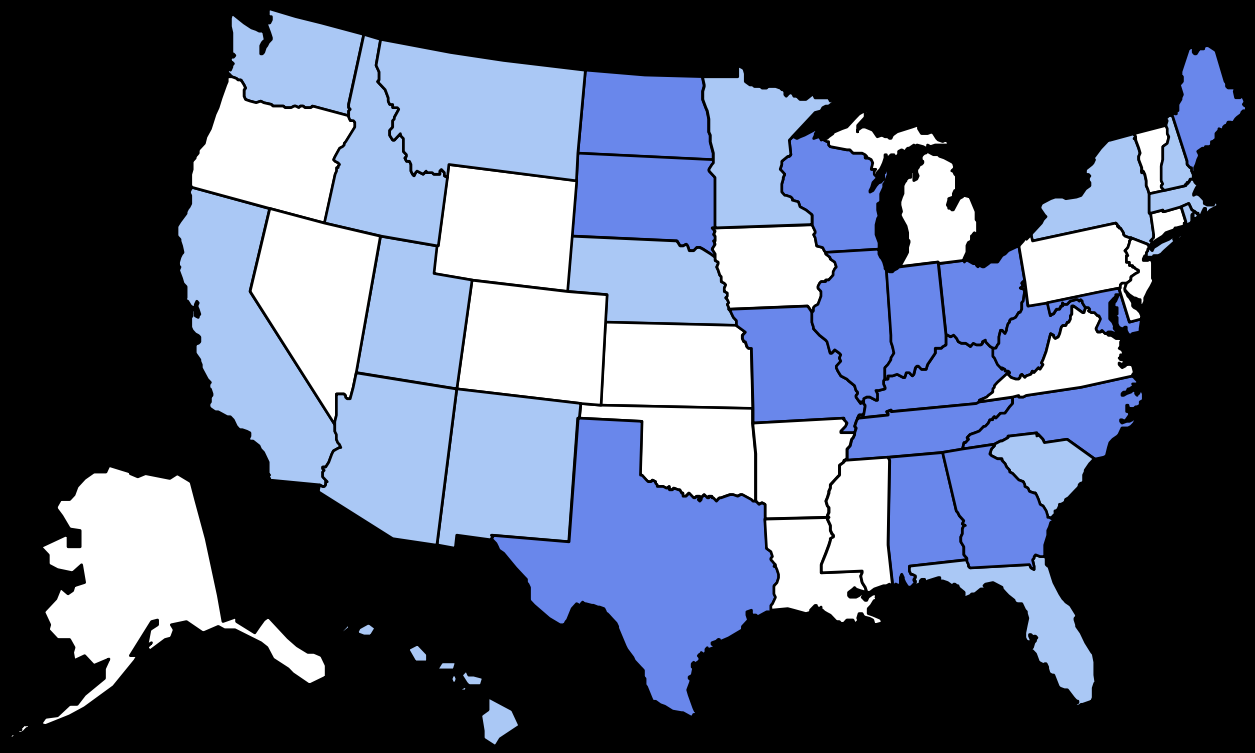

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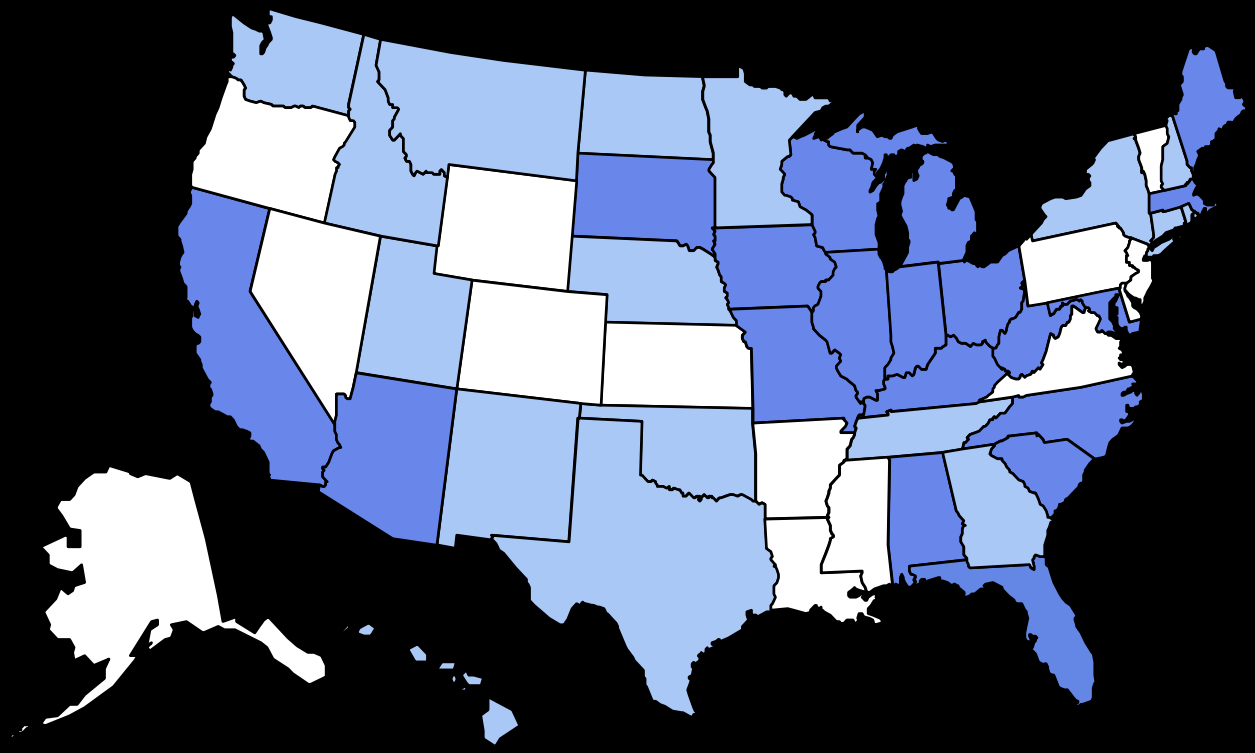

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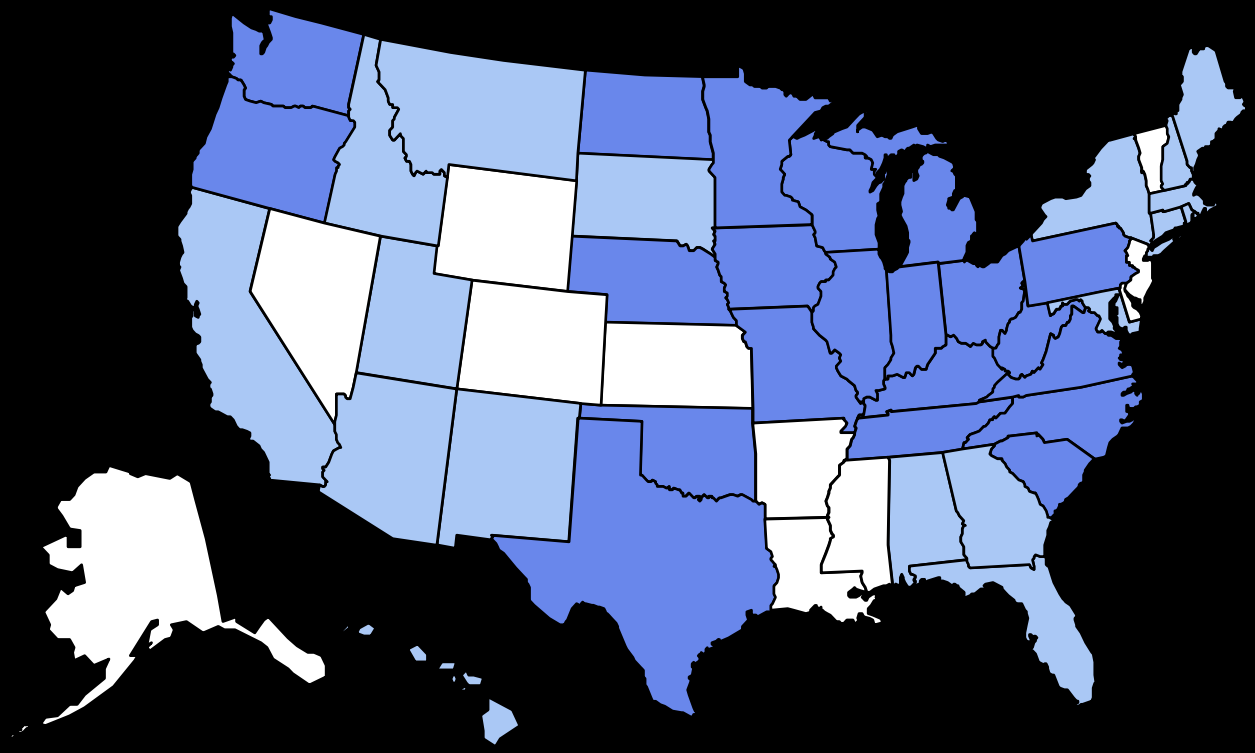

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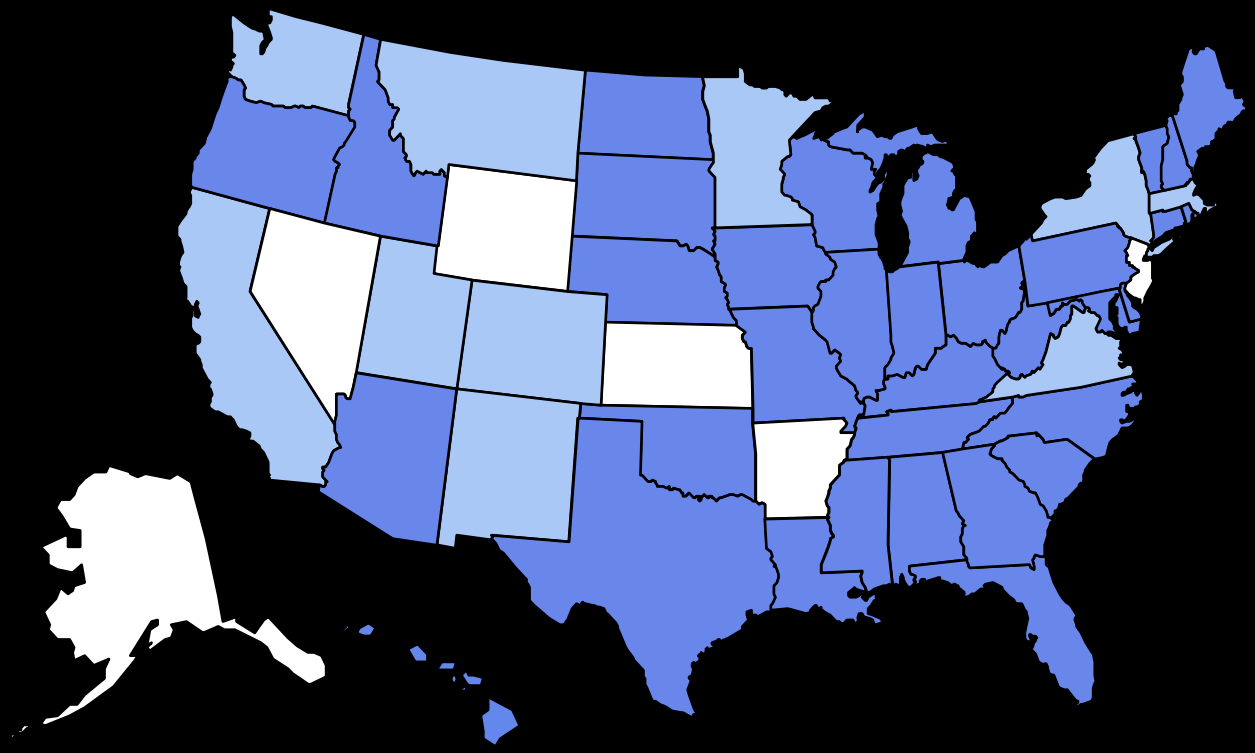

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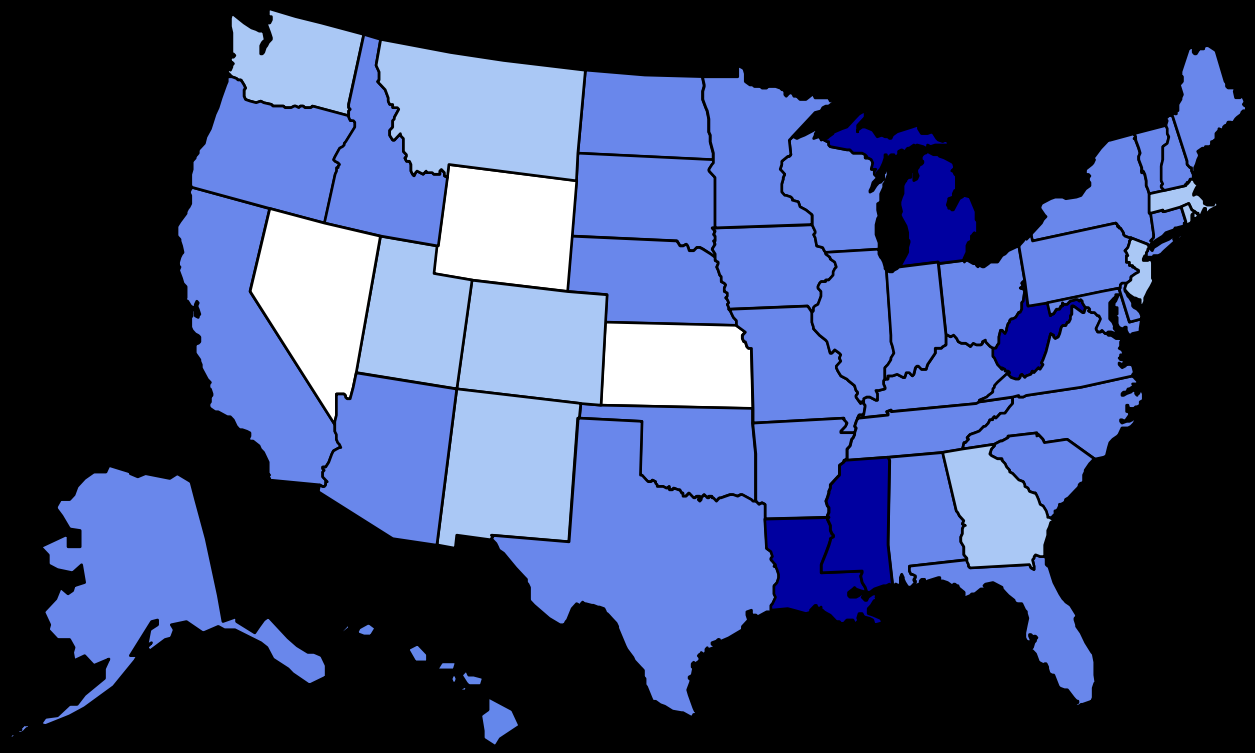

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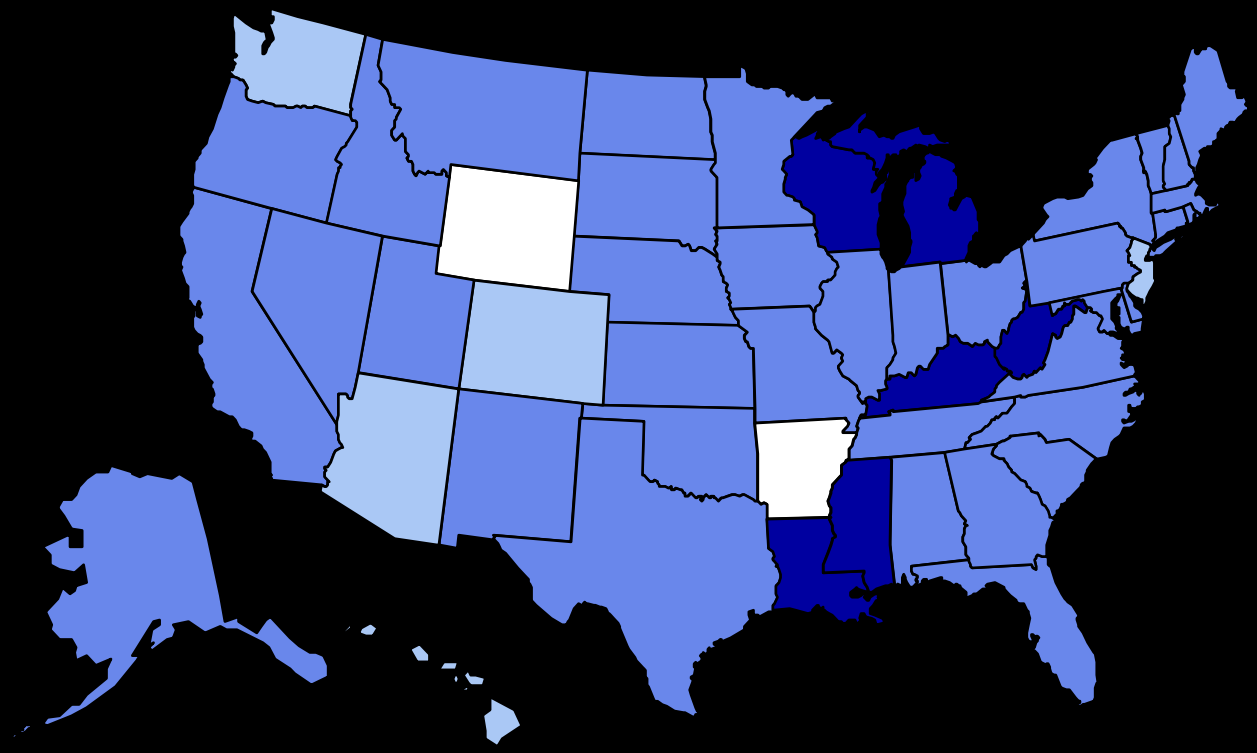

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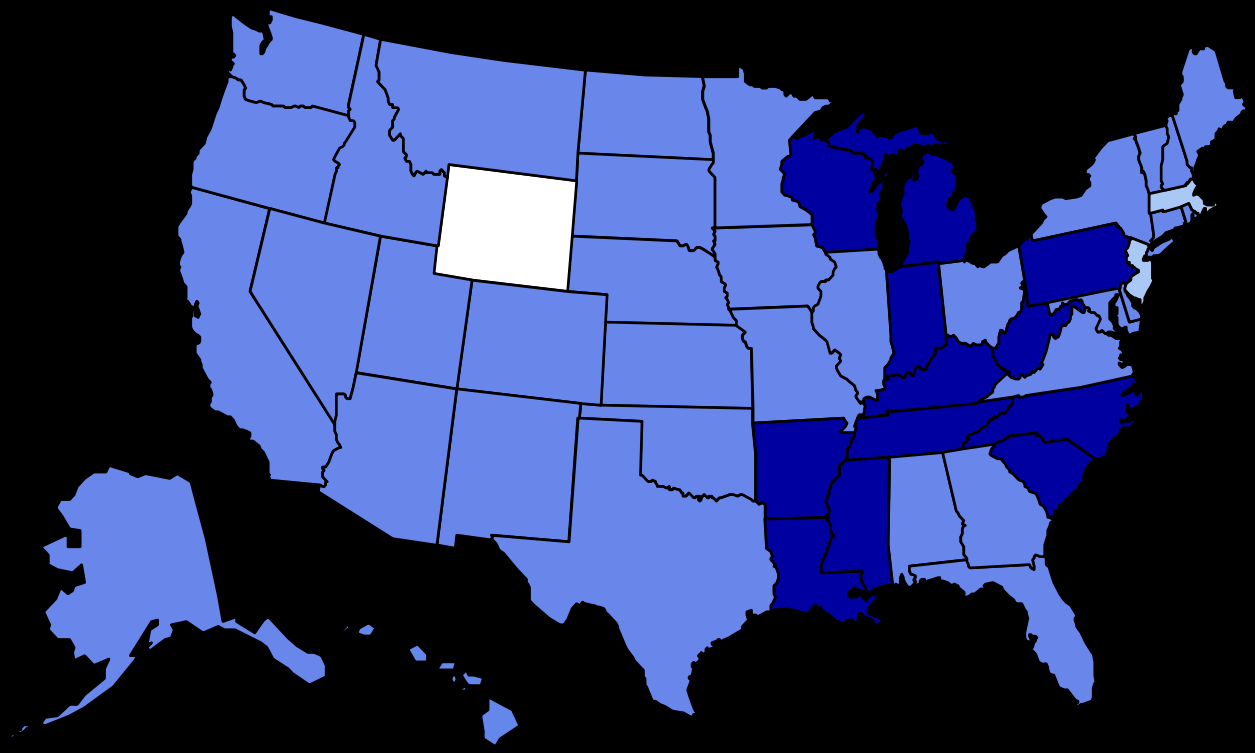

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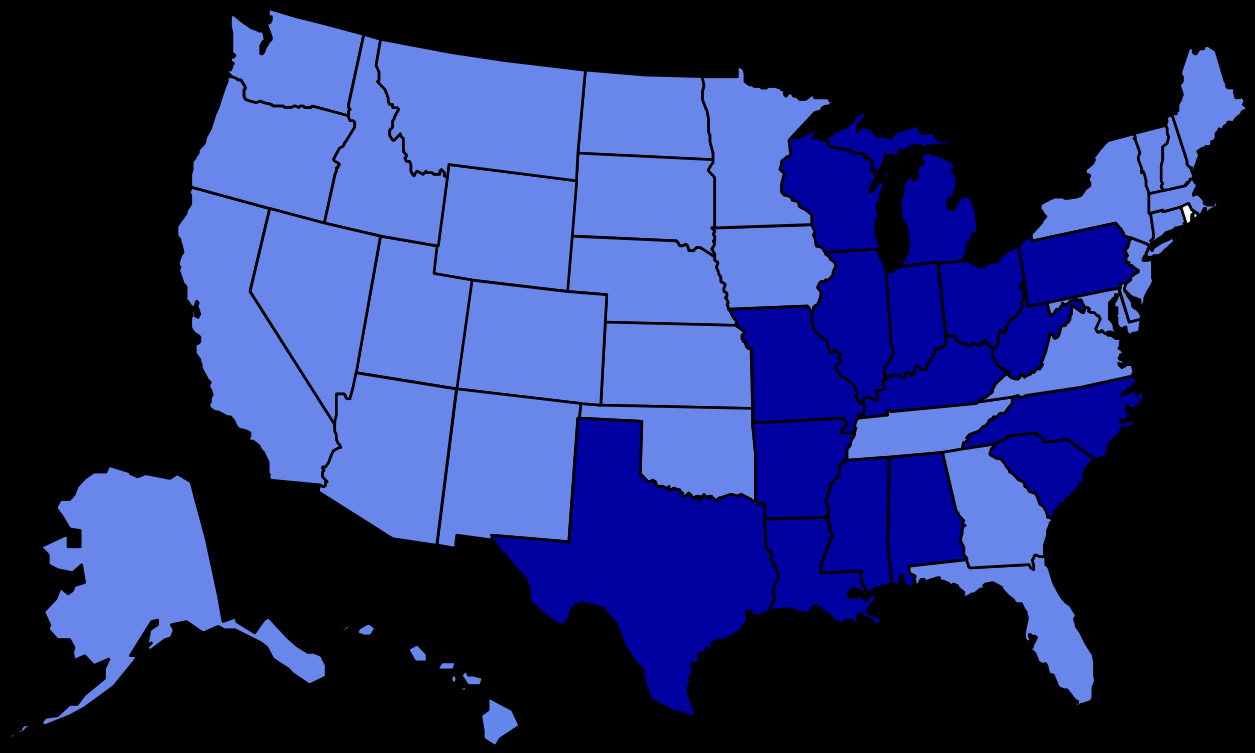

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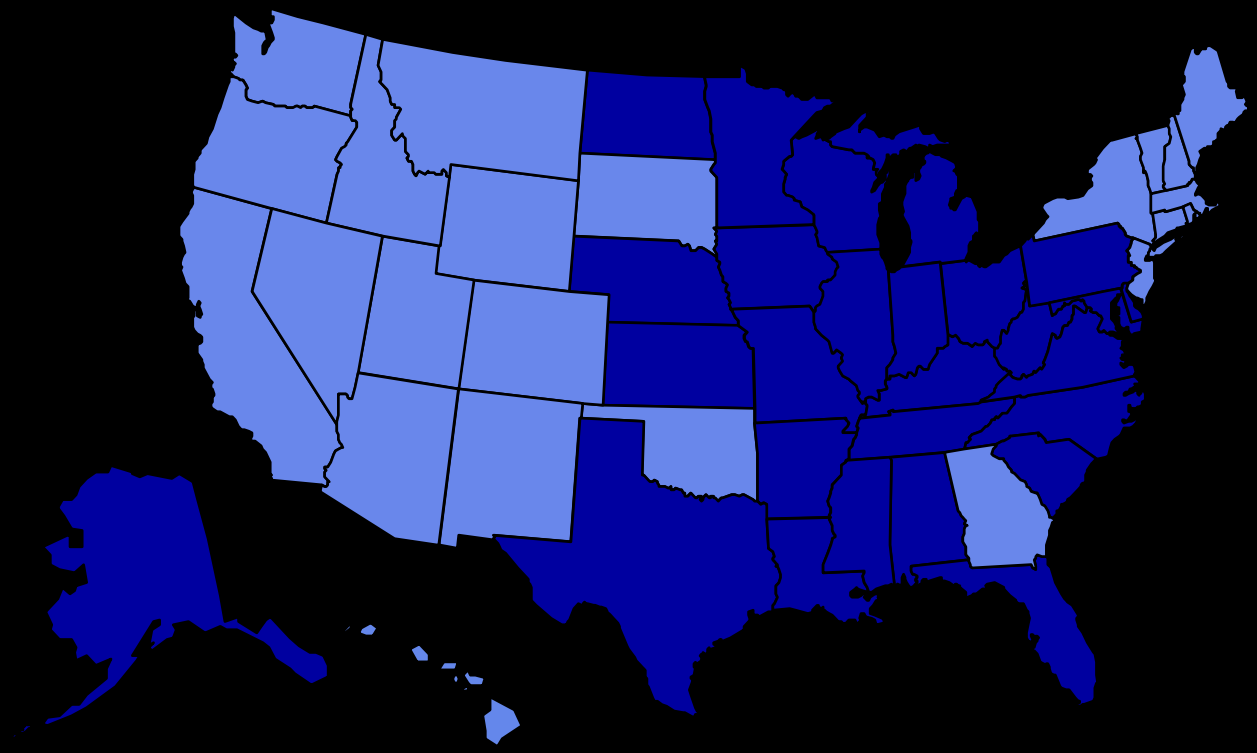

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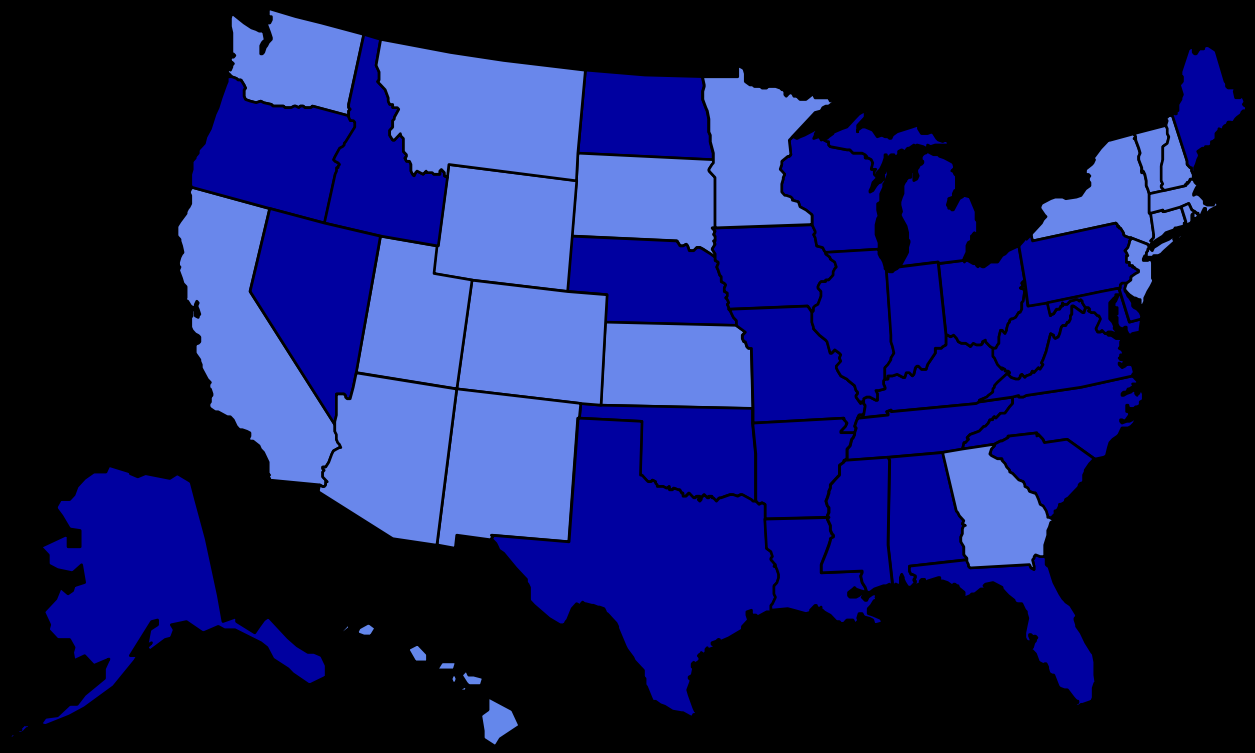

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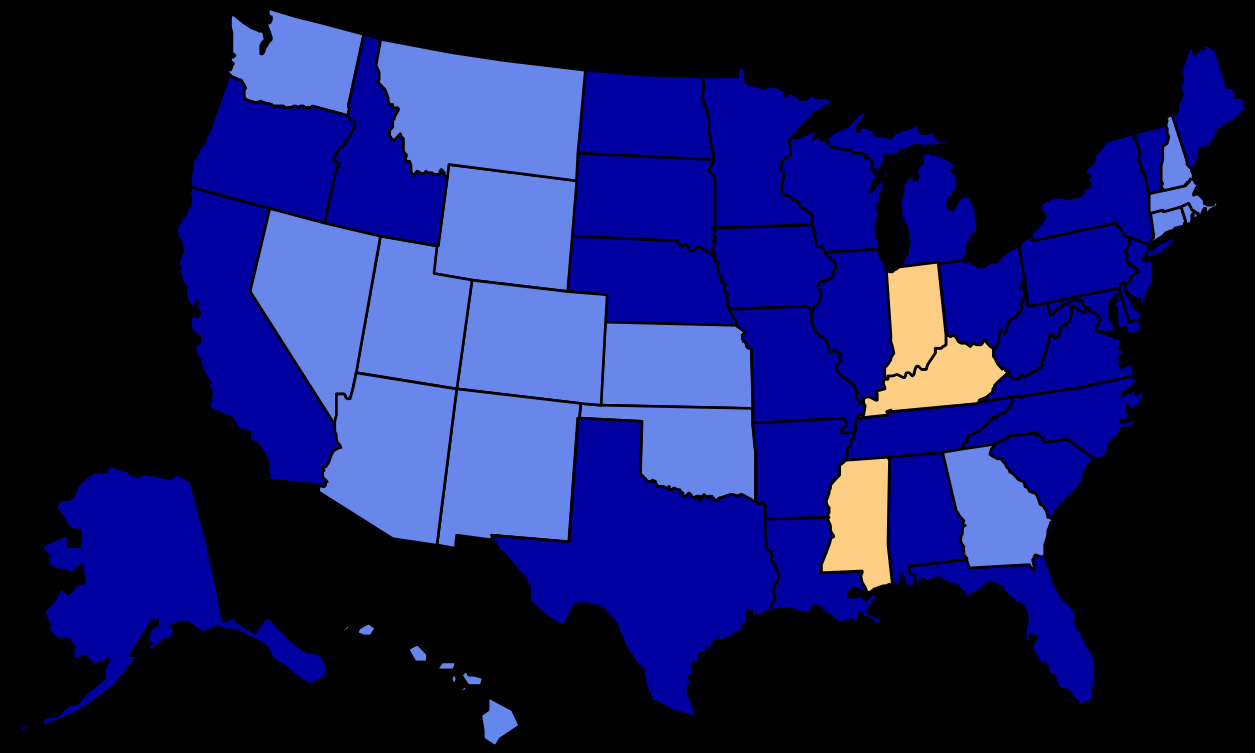

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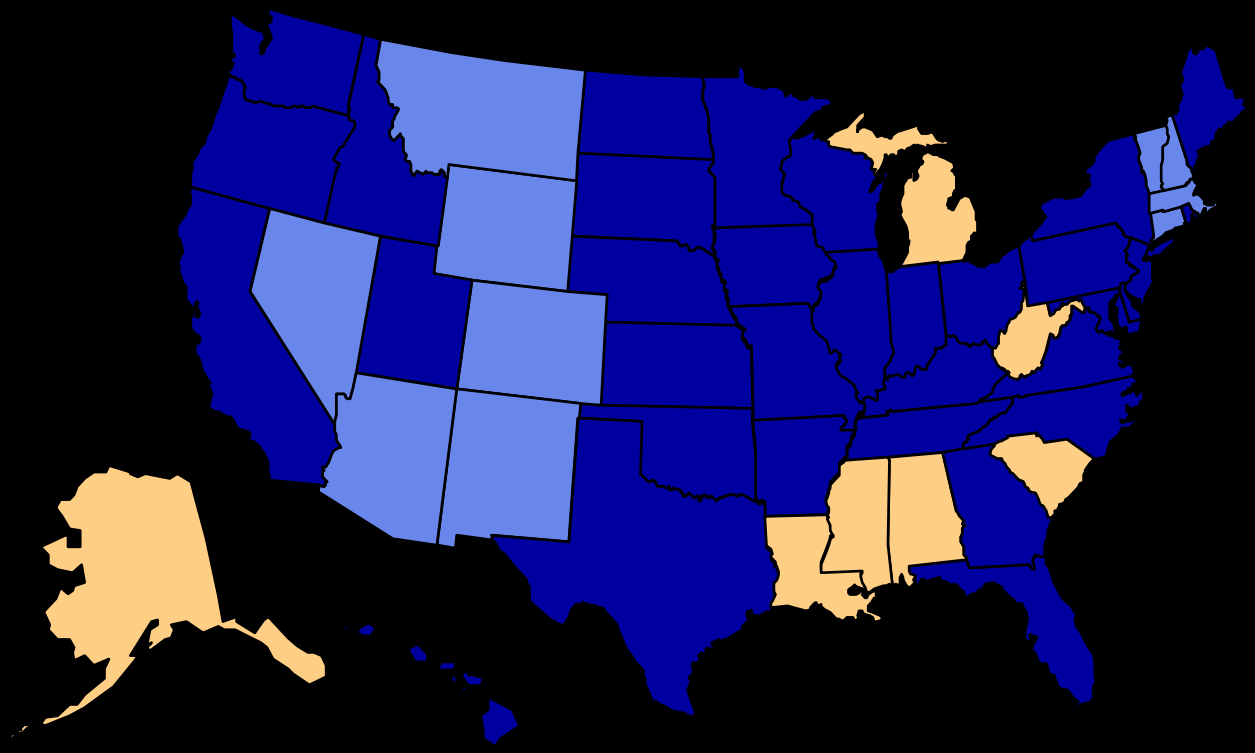

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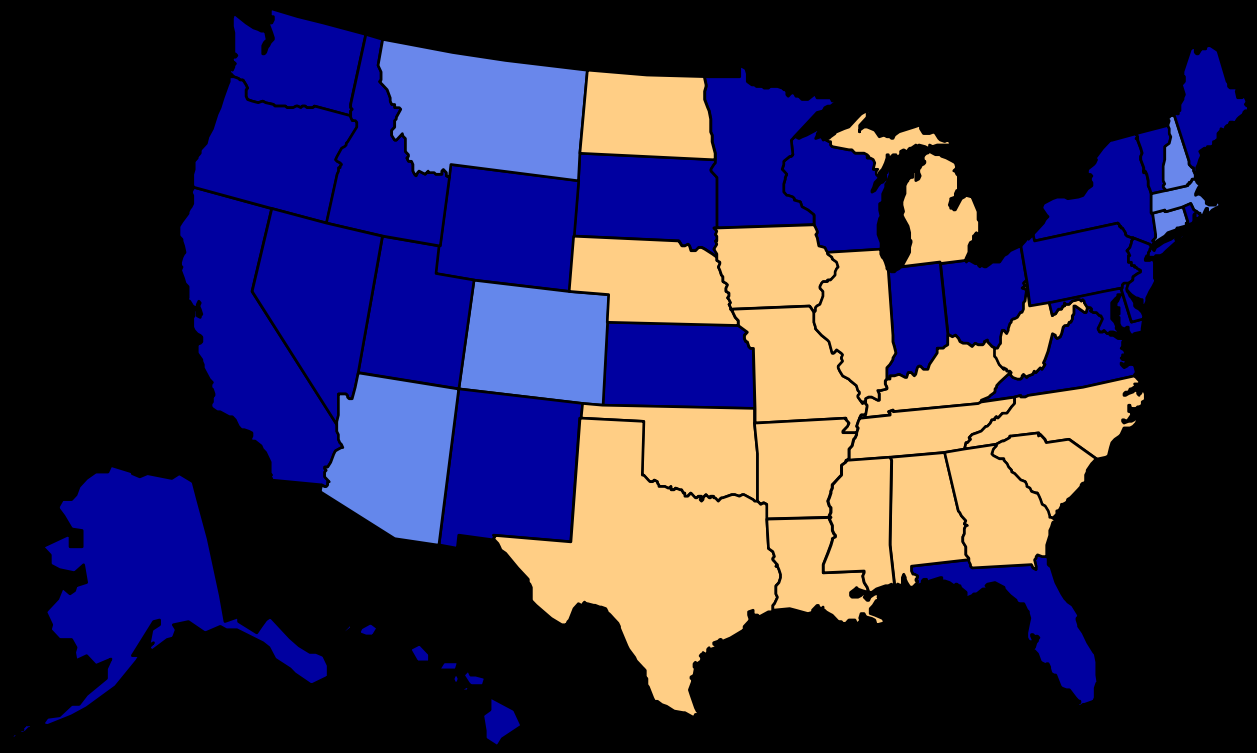

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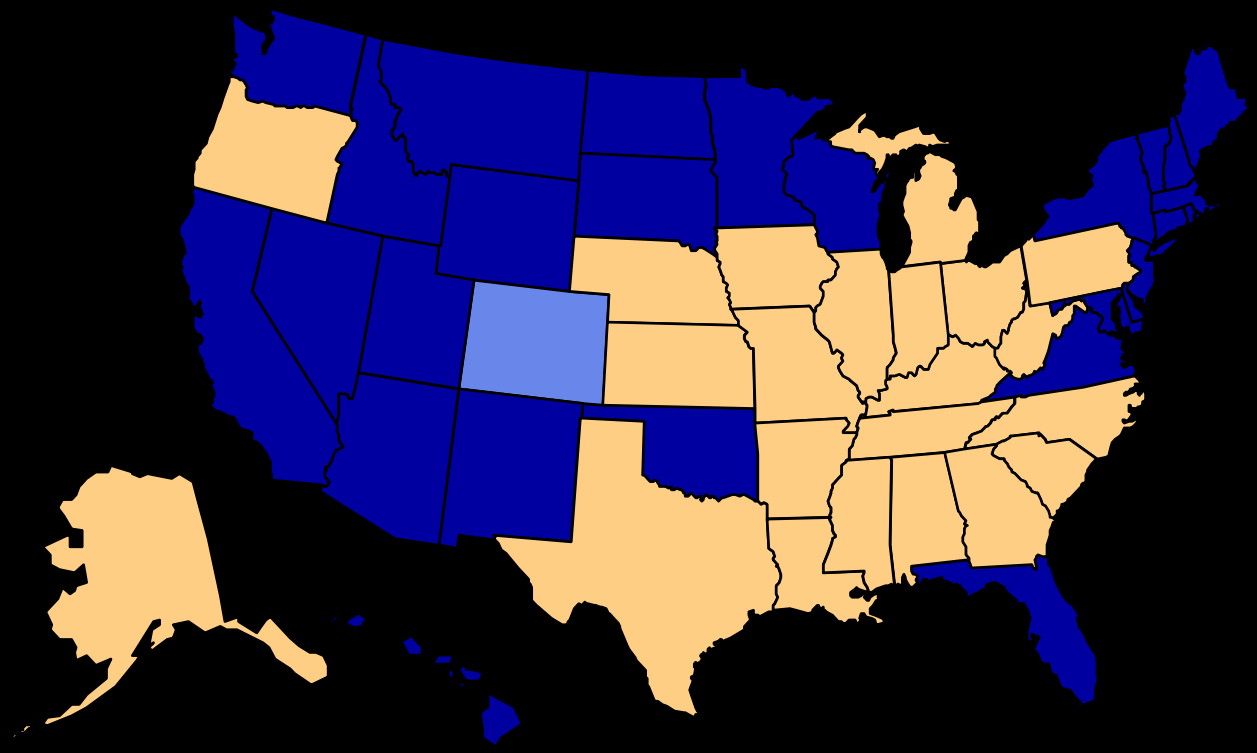

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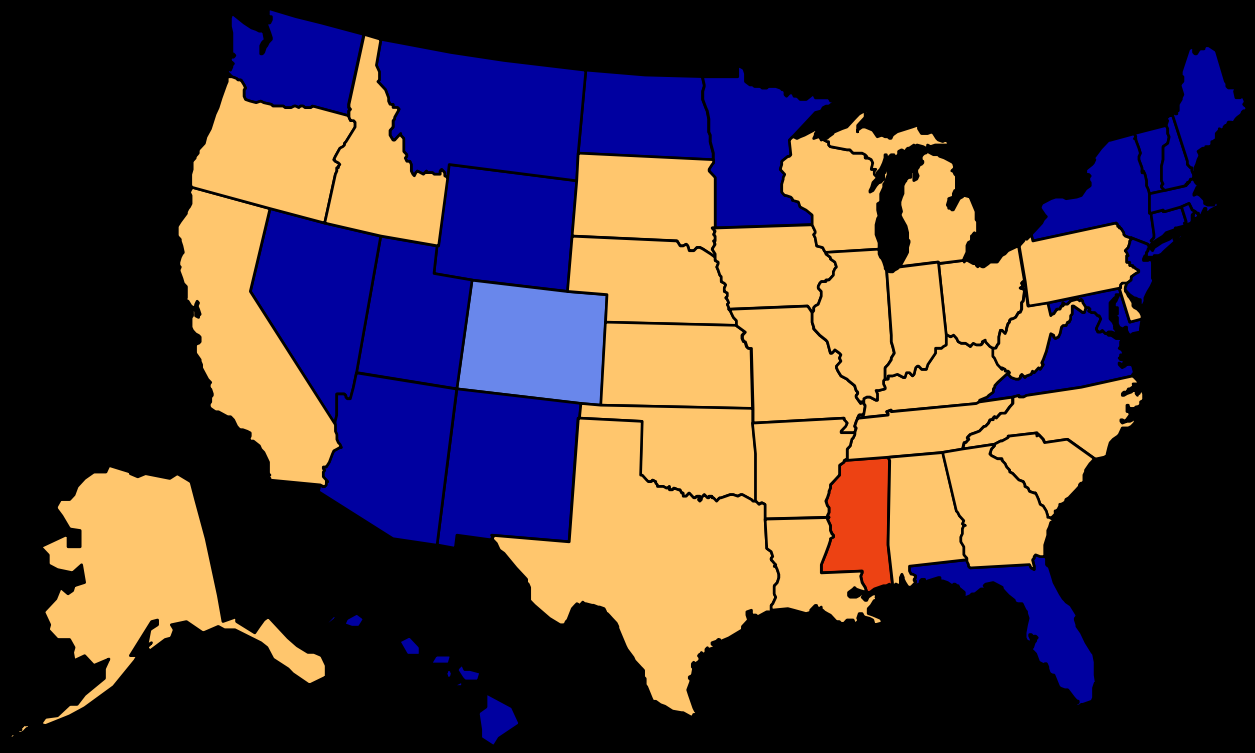

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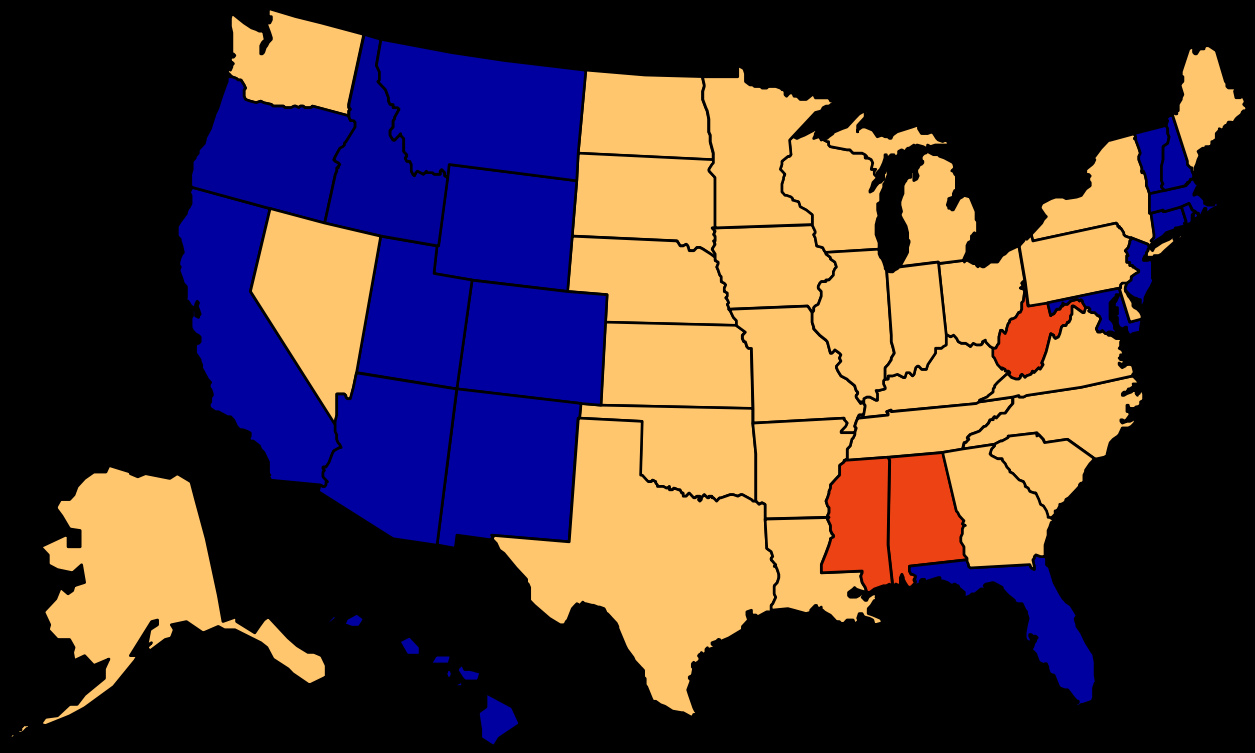

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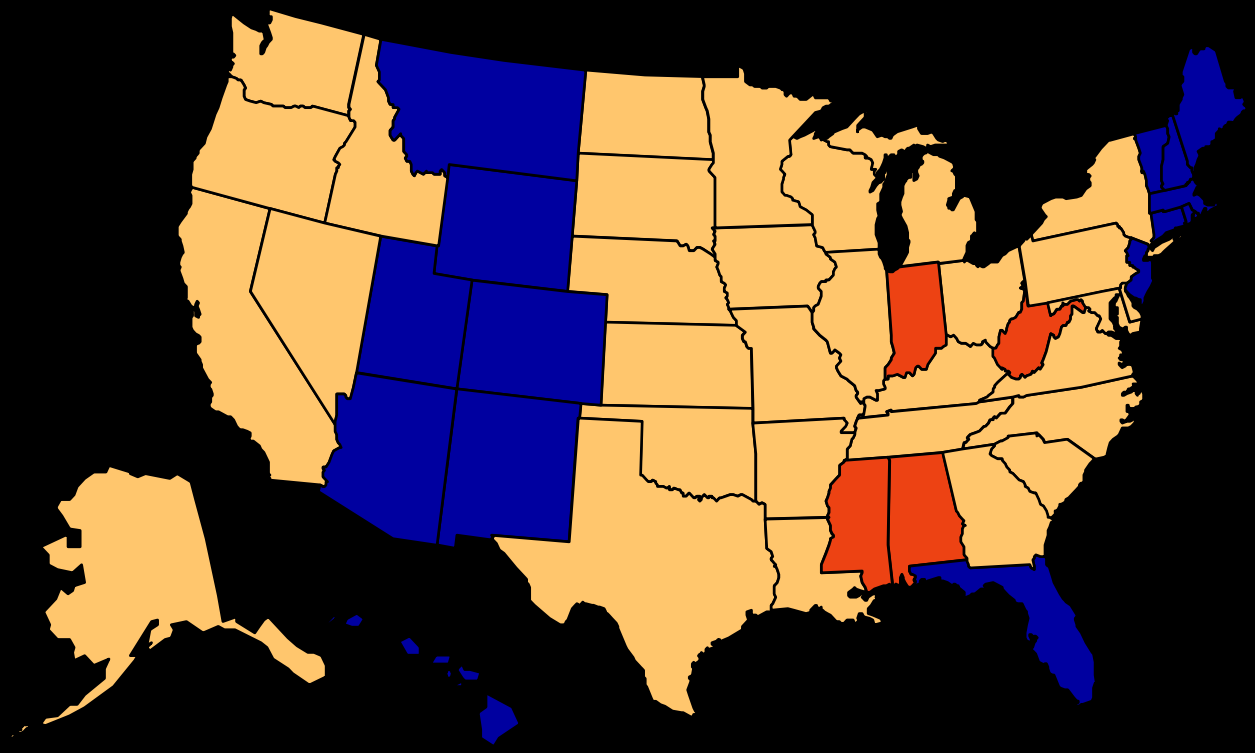

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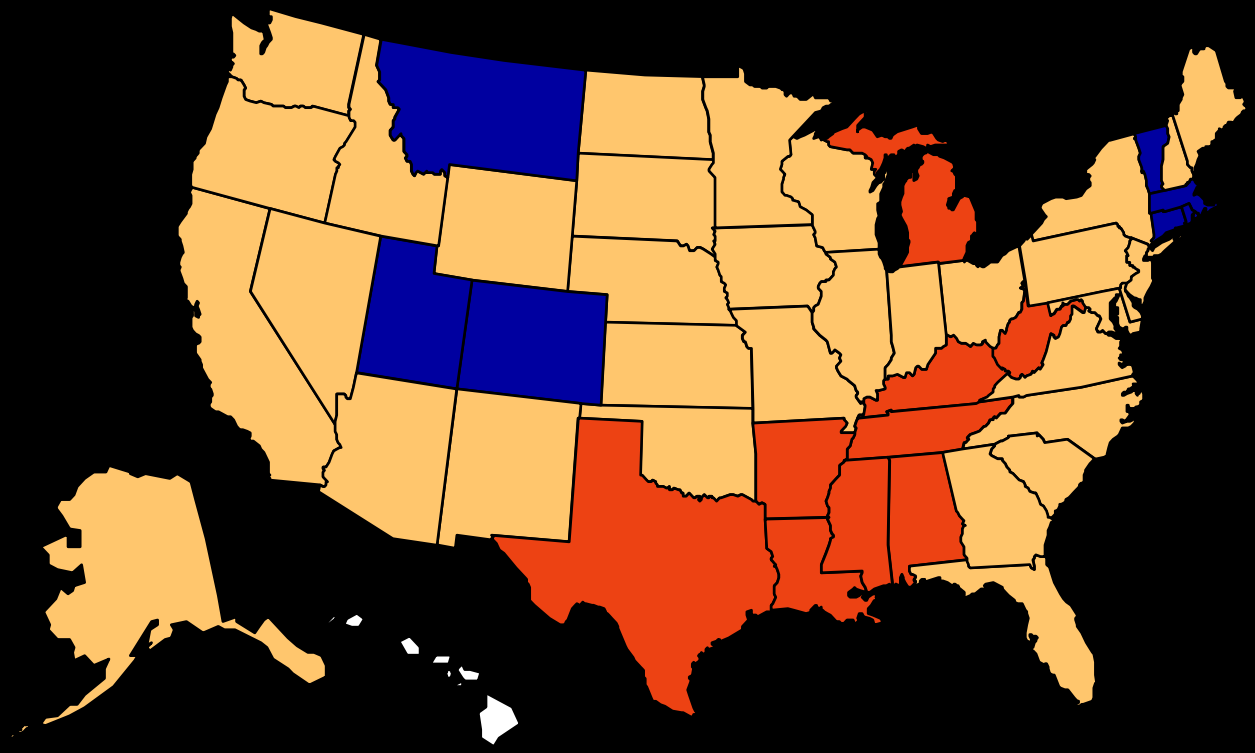

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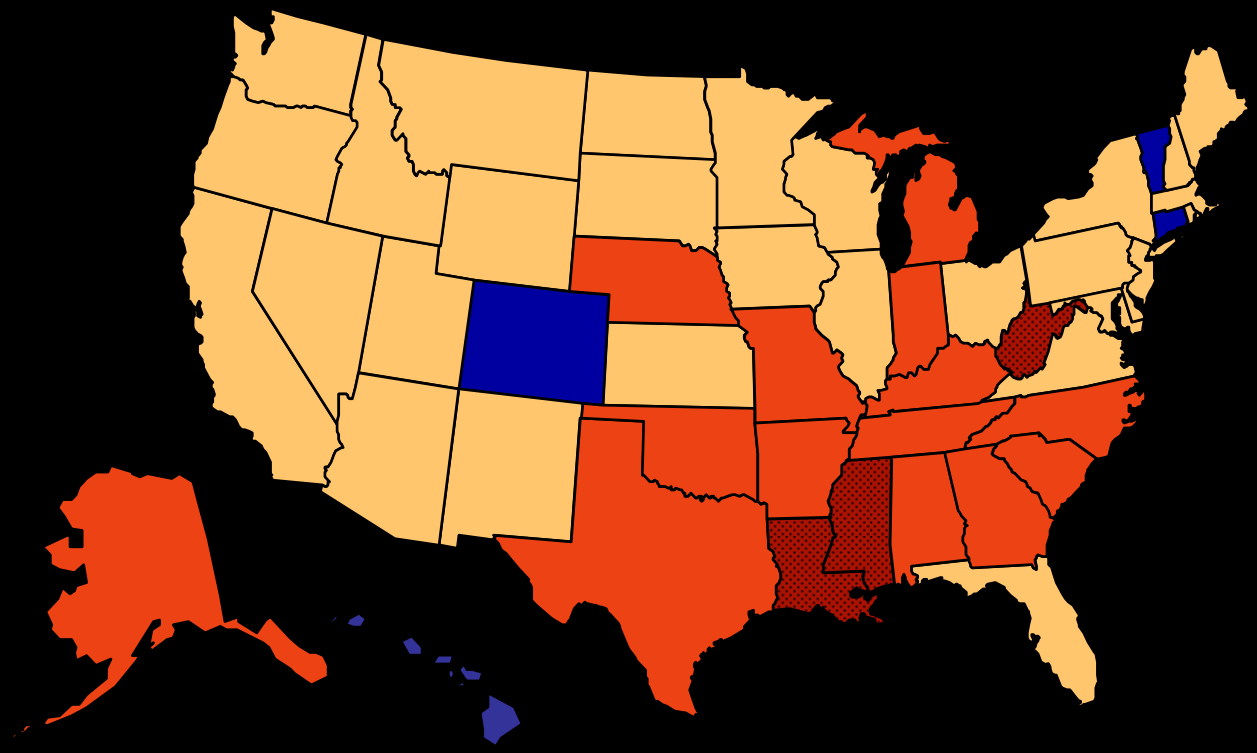

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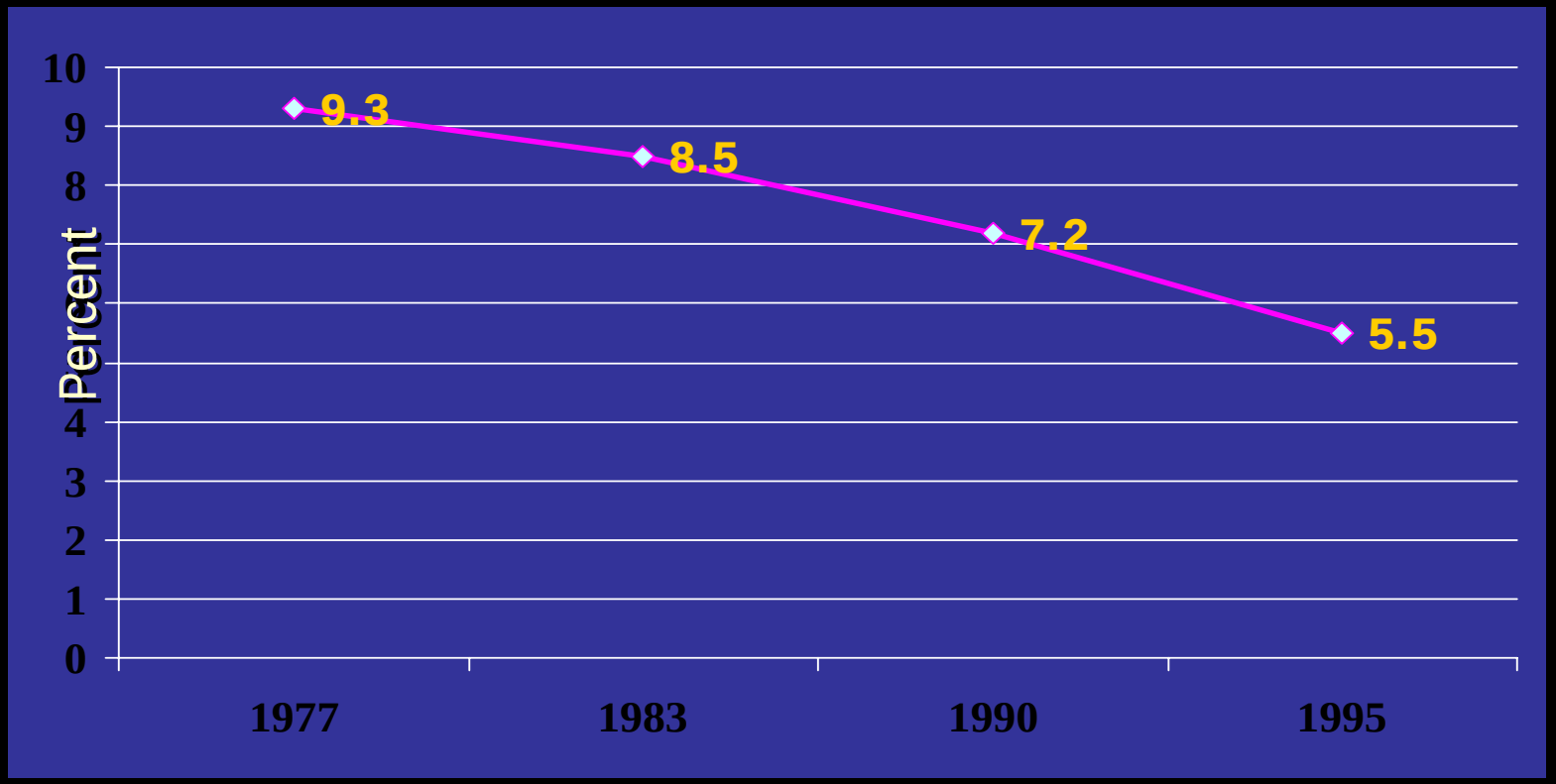
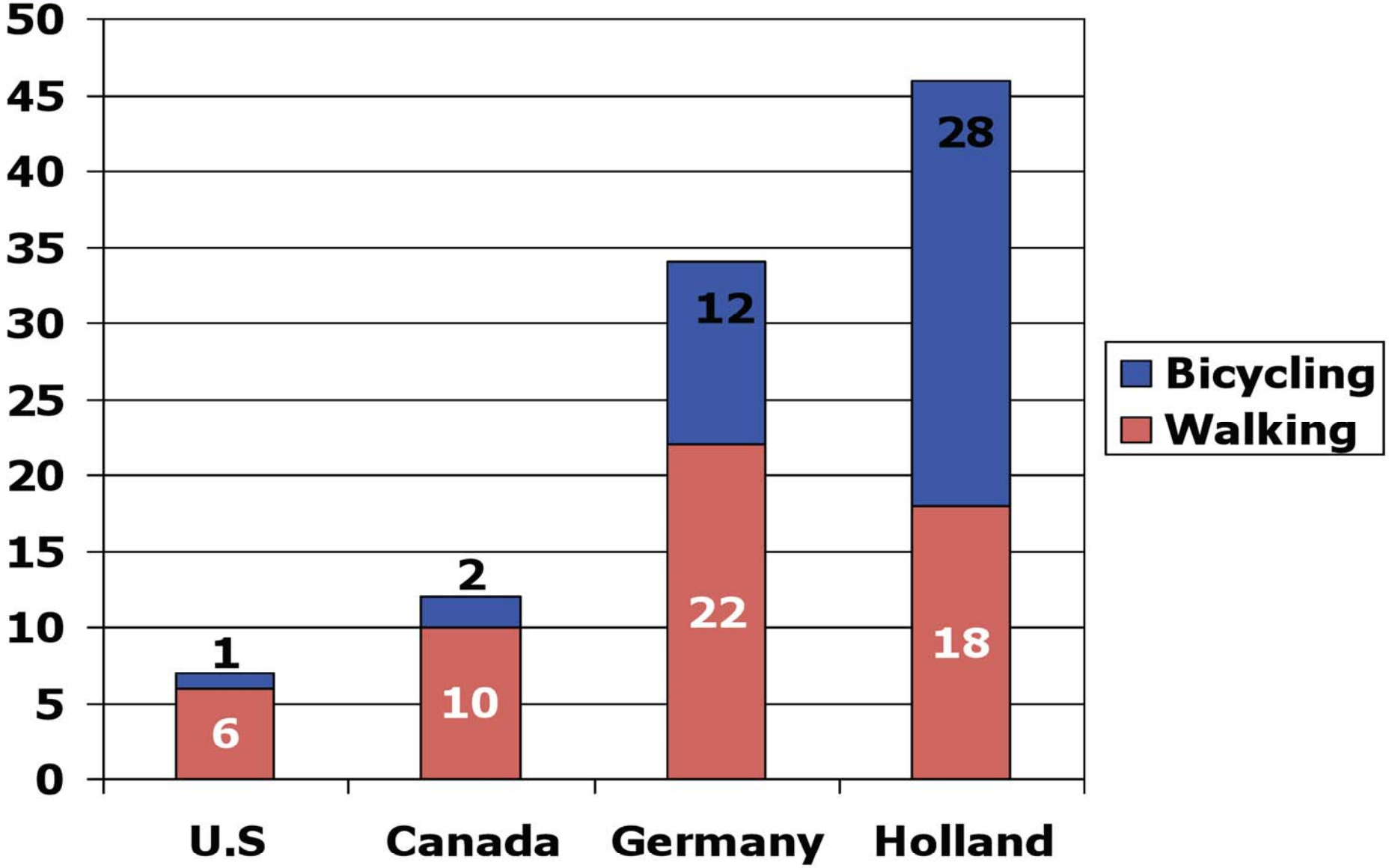
U.S. Walk Trips 1977-1995



Source: Nationwide Personal Transportation Survey, 1995

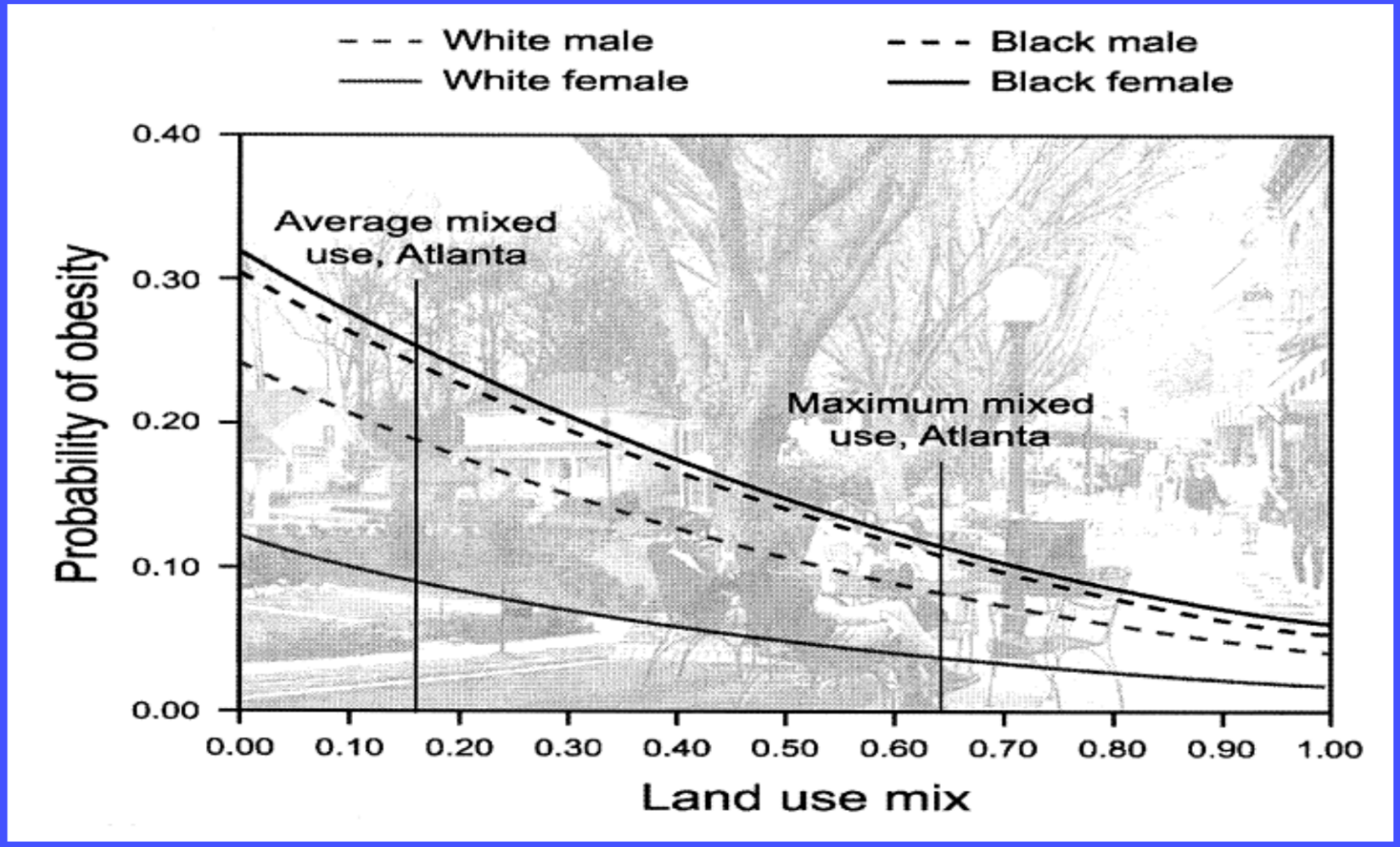
% of Trips in Urban Areas – 1995



Pucher J and Dijkstra L. Promoting Safe Walking and Cycling to Improve Public Health: Lessons From The Netherlands and Germany. AJPH, September 2003;93(9):1509-16.

Auto Zone
Discount Auto Parts

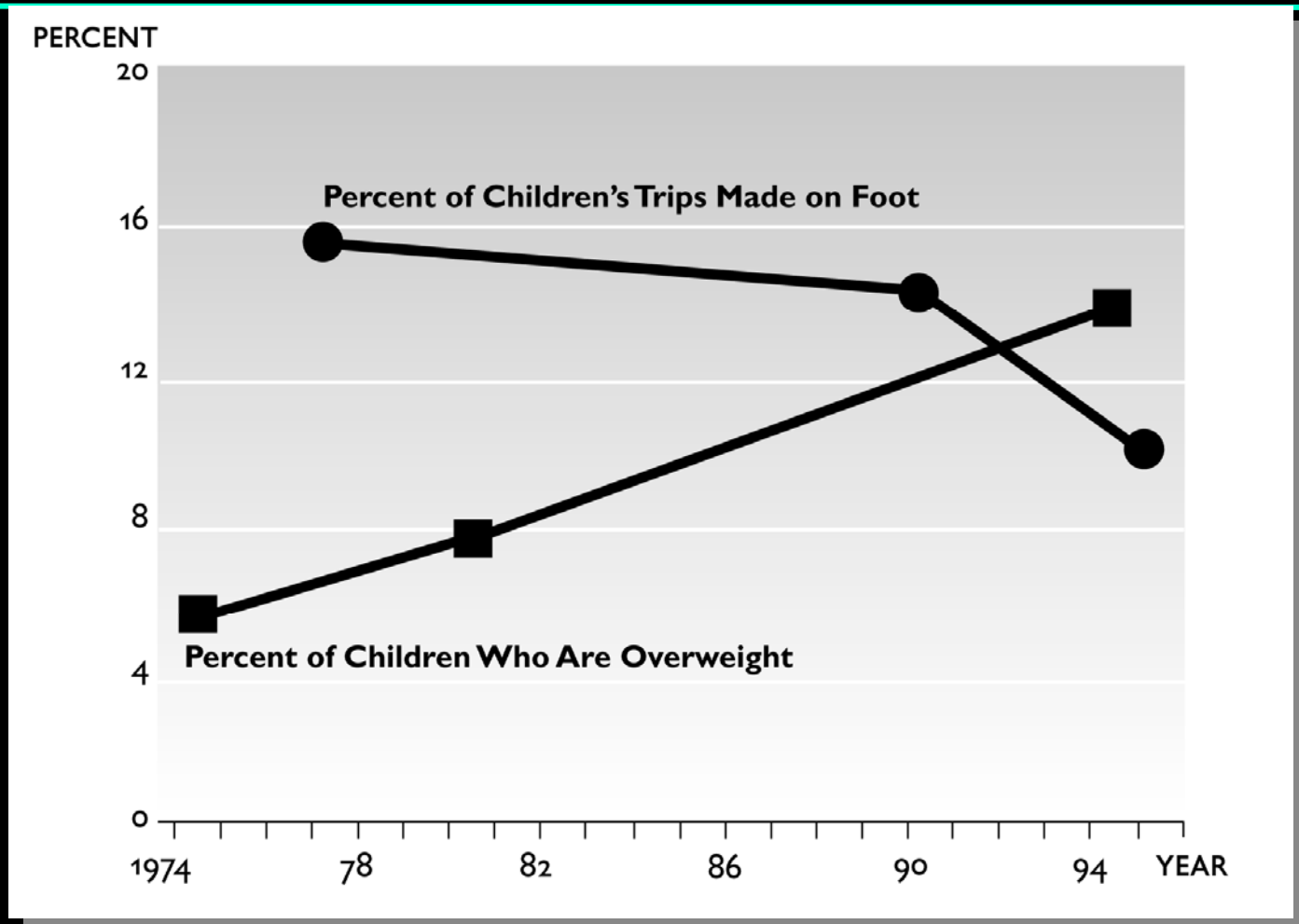
Higher density and connectivity: lower obesity– Atlanta study 2004



Obesity Relationships with Community Design, Physical Activity, and Time Spent in Cars

Lawrence D. Frank, PhD, Martin A. Andresen, MA, Thomas L. Schmid, PhD

Children Are Walking Less and Becoming Increasingly Overweight



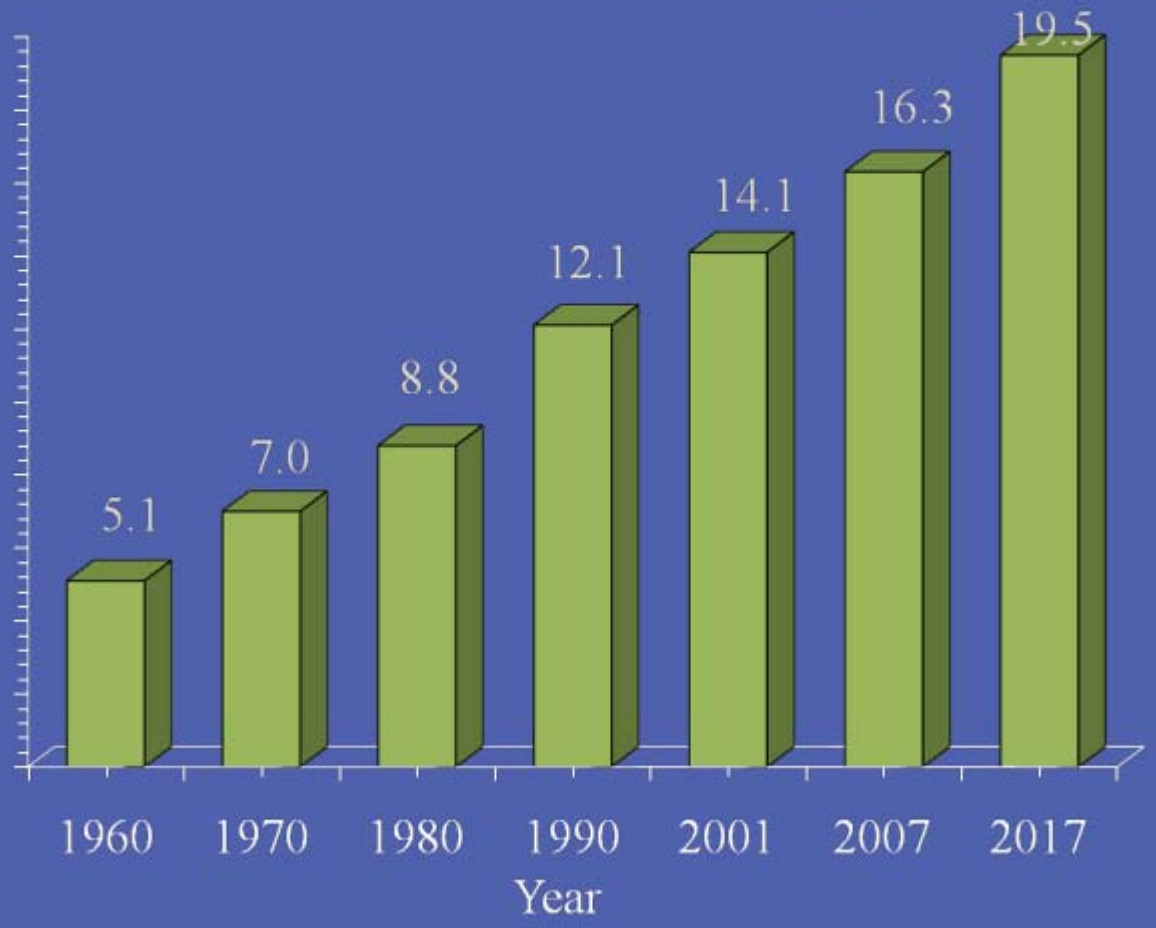
Surface Transportation Policy Project Data Analysis - 2001

GUMP

Walk/Bike to School

- 1974: 66% of children
- 2000: 13% of children

U.S. Health Care Expenditures as Percent of GDP Projections



Keehan et al:
Health Affairs
March/April 2008 27:
145-155

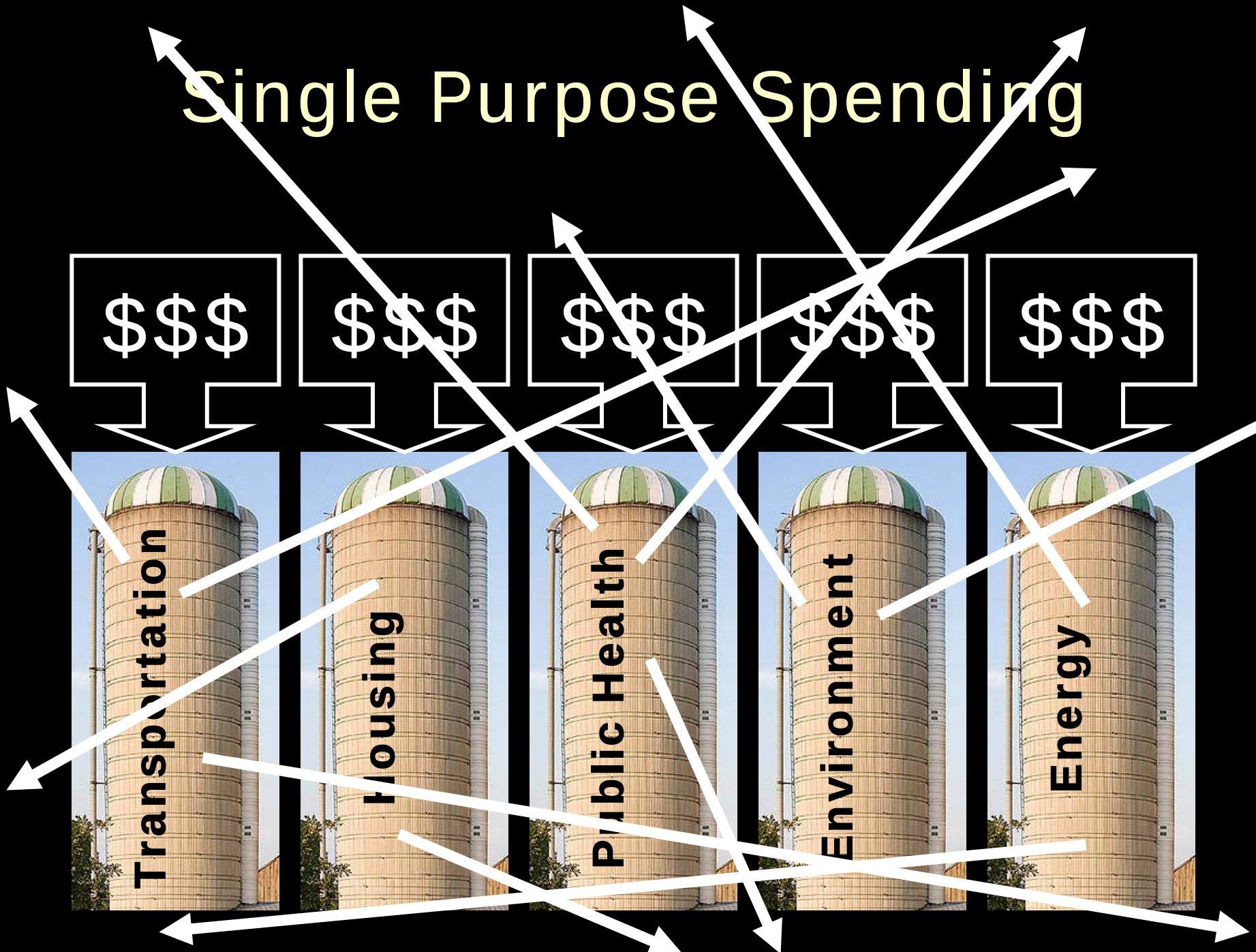
Bottom Line: Personal Health

- Humans require high levels of physical activity to stay healthy
- The answer is not in gyms but in "active living"
- The design of our built environment has a major influence on our ability to be active – especially for children
- This will be one of the most difficult economic issues of the next 25 years

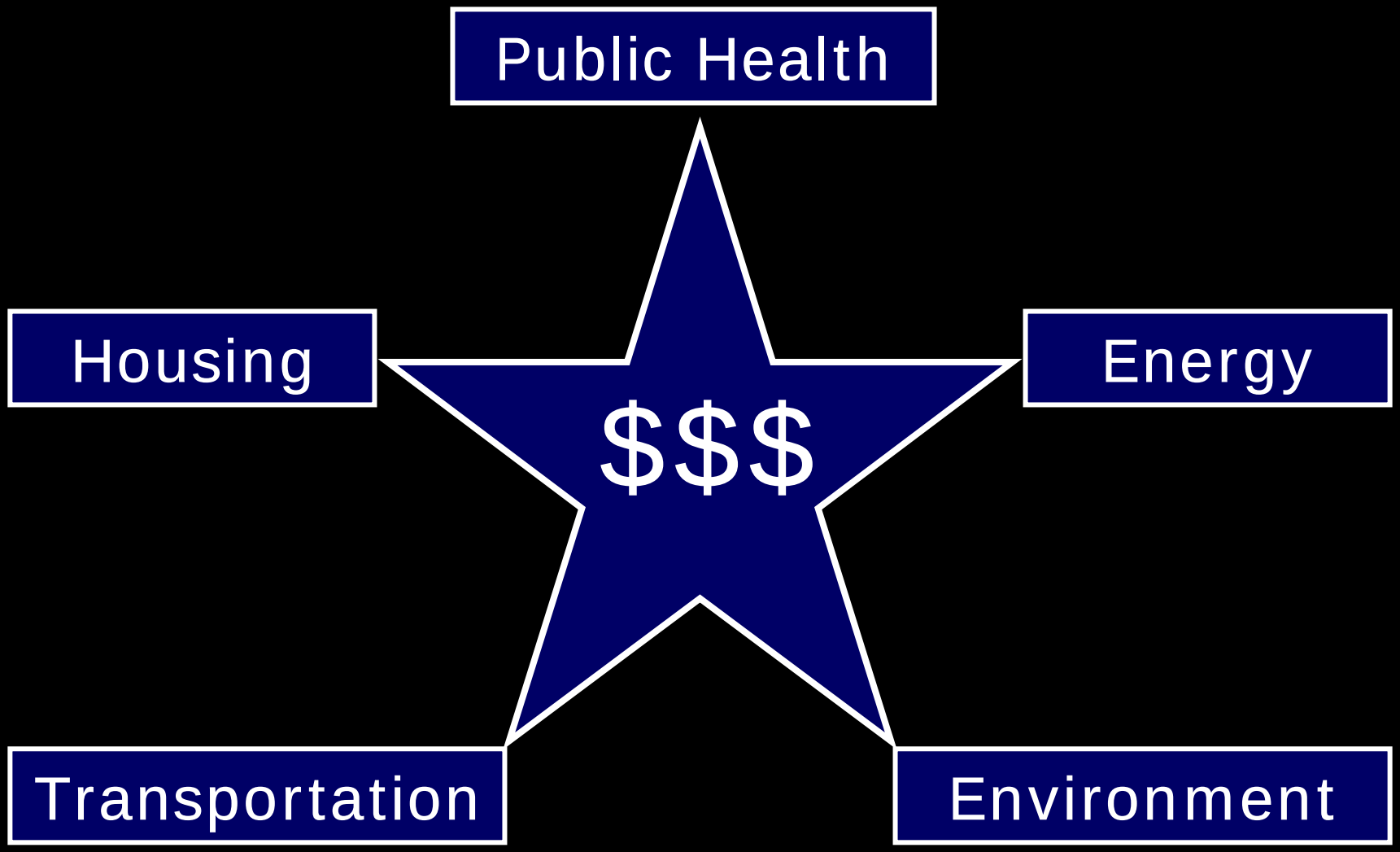
One Final Point – Transportation Trajectories

We will face these challenges with less money, not more…

Single Purpose Spending



Integrated, Strategic Investment



3

3. Opportunities

Smart Mobility – Arizona & Maricopa County

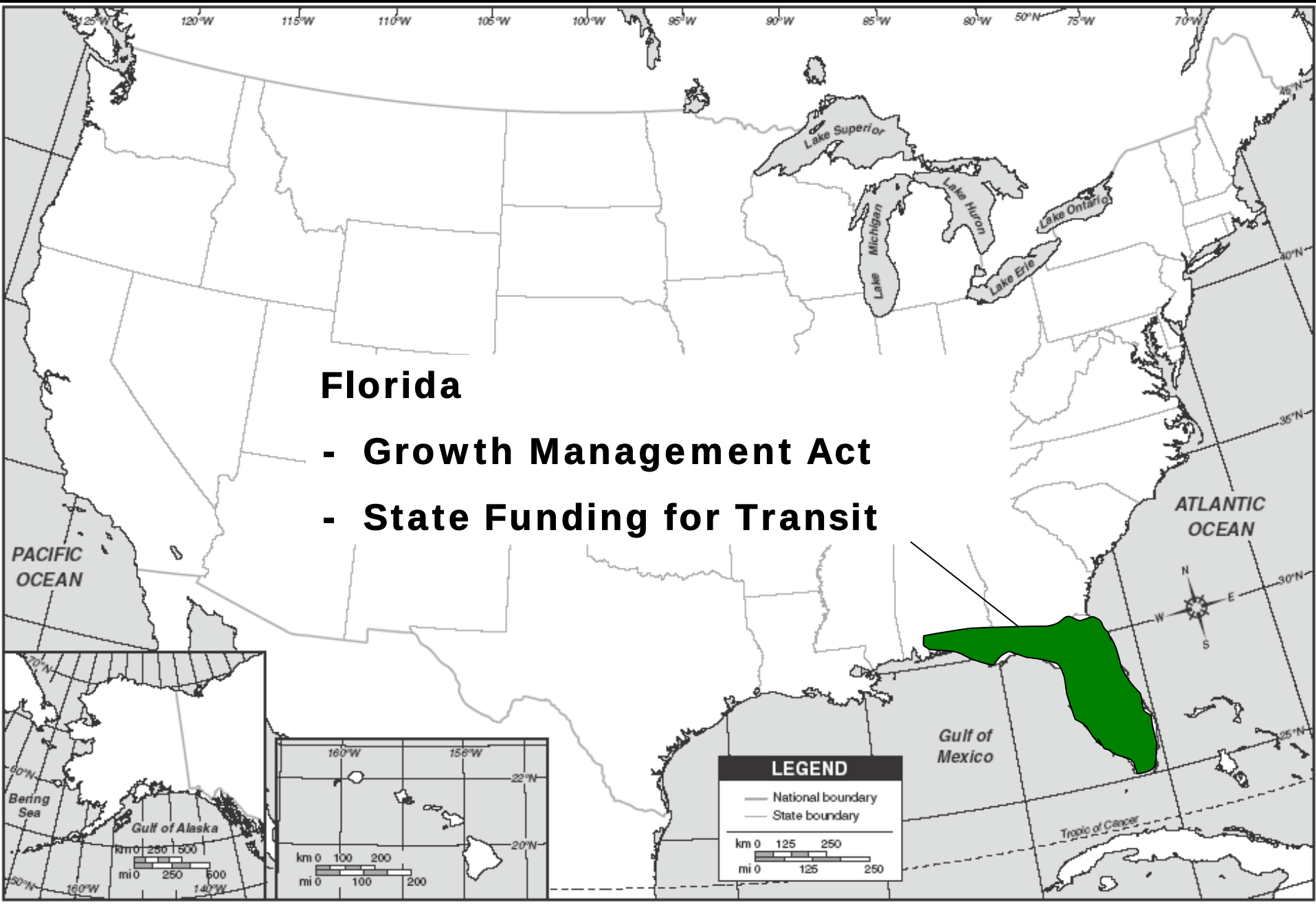
Charlier Associates, Inc.

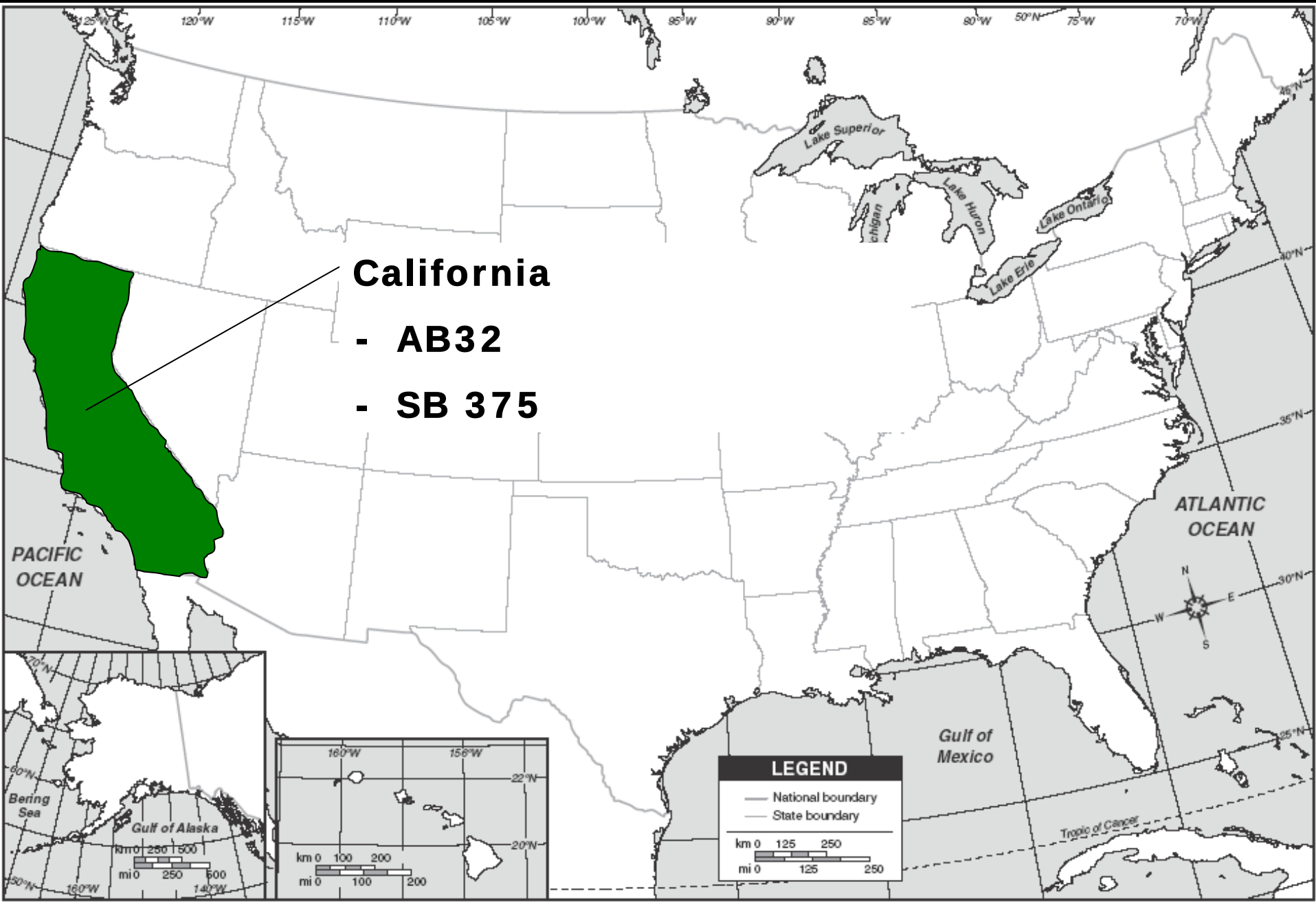
What is “Smart” Transportation?

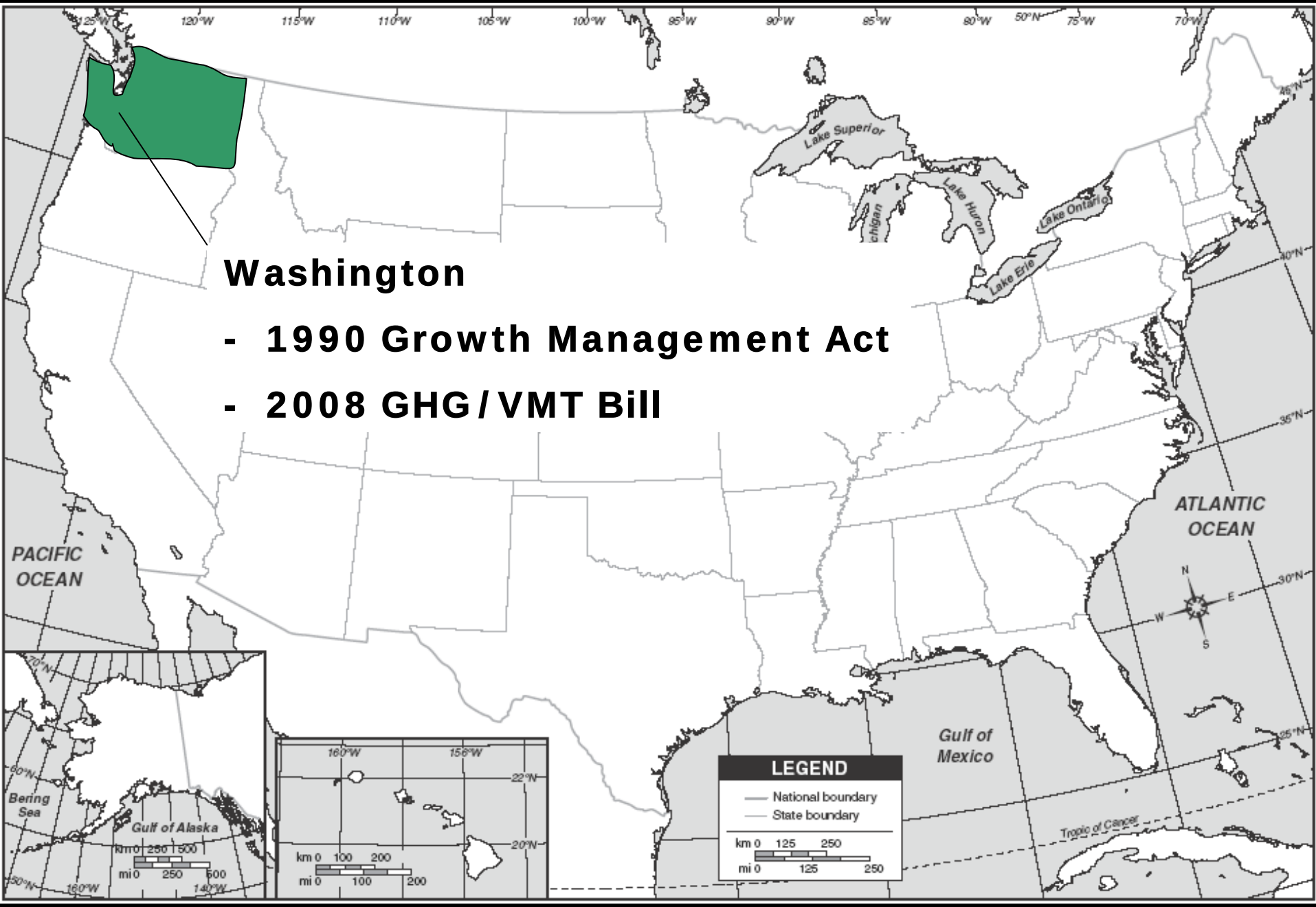
- Improves personal mobility
- Reduces energy used/mile of travel
- Decouples transportation from imported petroleum
- Reduces families’ cost of access
- Uses “smart growth” to improve transportation system effectiveness
- Uses integrated investment to avoid spending at cross purposes

Leading Edge

- State of Florida
- State of Washington
- State of California


Florida
- Growth Management Act
- State Funding for Transit
PACIFIC OCEAN
ATLANTIC OCEAN
Gulf of Mexico
Lake Superior
Lake Michigan
Lake Huron
Lake Ontario
Lake Erie
Bering Sea
Gulf of Alaska
Tropic of Cancer
LEGEND
National boundary
State boundary


California
- AB32
- SB 375
PACIFIC OCEAN
ATLANTIC OCEAN
Gulf of Mexico
Lake Superior
Lake Huron
Lake Ontario
Lake Erie
Bering Sea
Gulf of Alaska
Tropic of Cancer
LEGEND
National boundary
State boundary
km 0 125 250
mi 0 125 250
km 0 100 200
mi 0 100 200
km 0 250 500
mi 0 250 500


Washington
- 1990 Growth Management Act
- 2008 GHG/VMT Bill
PACIFIC OCEAN
ATLANTIC OCEAN
Gulf of Mexico
Lake Superior
Lake Huron
Lake Ontario
Lake Erie
Bering Sea
Gulf of Alaska
Tropic of Cancer
LEGEND
National boundary
State boundary

But…

- Arizona is unlikely to pursue “growth management” or regulation
- Local & regional government will bear significant leadership responsibility
- There will be a national emphasis on – & funding for – infrastructure

Arizona/Maricopa Directions

- Improve personal mobility
- Remain economically competitive
- Preserve quality of life
- Provide for children & grandchildren

We Do Have to Address:

- Energy
- Congestion
- Climate Change
- Family Budgets
- Personal Health

Bottom Line: Energy

- Petroleum demand will far exceed supply
- Prices will rise considerably by 2030
- Prices will also tend to be unstable
- 95% of transportation energy today is provided by imported petroleum
- Transportation is the fastest growing petroleum end use category - worldwide
- Energy security will not be achievable until we reduce reliance on oil for transportation

Bottom Line: Congestion

- Only about 1/3 of traffic growth has been caused by population growth
- “Project & Provide” planning was intended to respond to demand, but instead generated demand
- Highway expansion programs have not reduced congestion or delay
- The future will not be like the past

Bottom Line: Climate Change

- Arizona will need to reduce emissions of transportation greenhouse gases
- The required reduction cannot be achieved through alternative fuels or new technologies
- Success will require reducing per capita VMT
- Delay in starting will add to the cost and will put the state at a competitive disadvantage nationally

Bottom Line: Family Budgets

- Cost of living is out of line with household income for many families
- Transportation costs are the 1st or 2nd largest cost in family budgets
- The market for exurban sprawl has shrunk… and may be gone entirely
- Where will Phoenix house its growth?

Bottom Line: Personal Health

- Humans require high levels of physical activity to stay healthy
- The answer is not in gyms but in "active living"
- The design of our built environment has a major influence on our ability to be active – especially for children
- This will be one of the most difficult economic issues of the next 25 years

Arizona Opportunities

a) Location Efficiency

b) Complete Streets

c) Context-Based Design

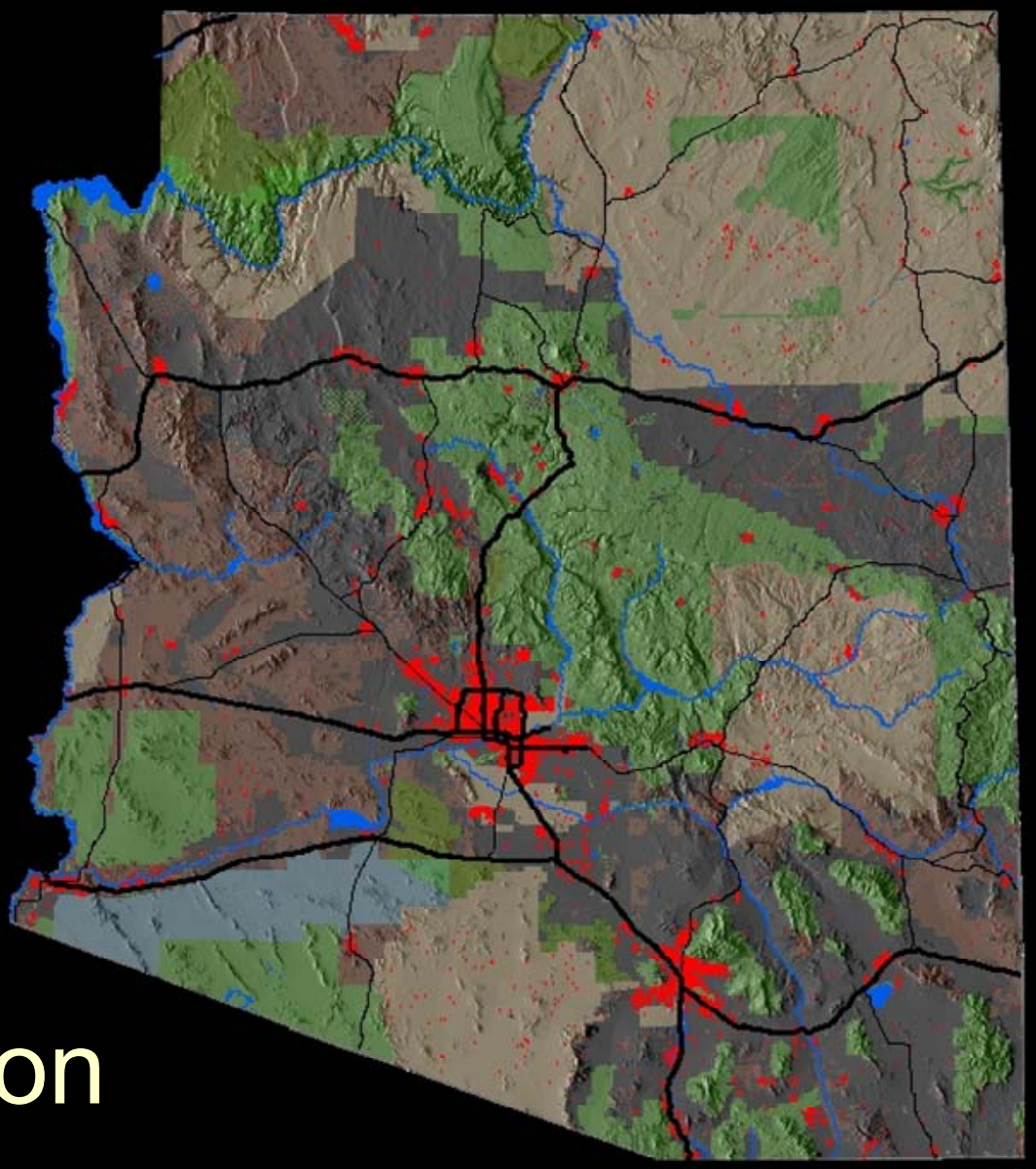
d) Transit & Intercity Rail

a) Location Efficiency

Arizona/Maricopa Opportunities

Charlier Associates, Inc.

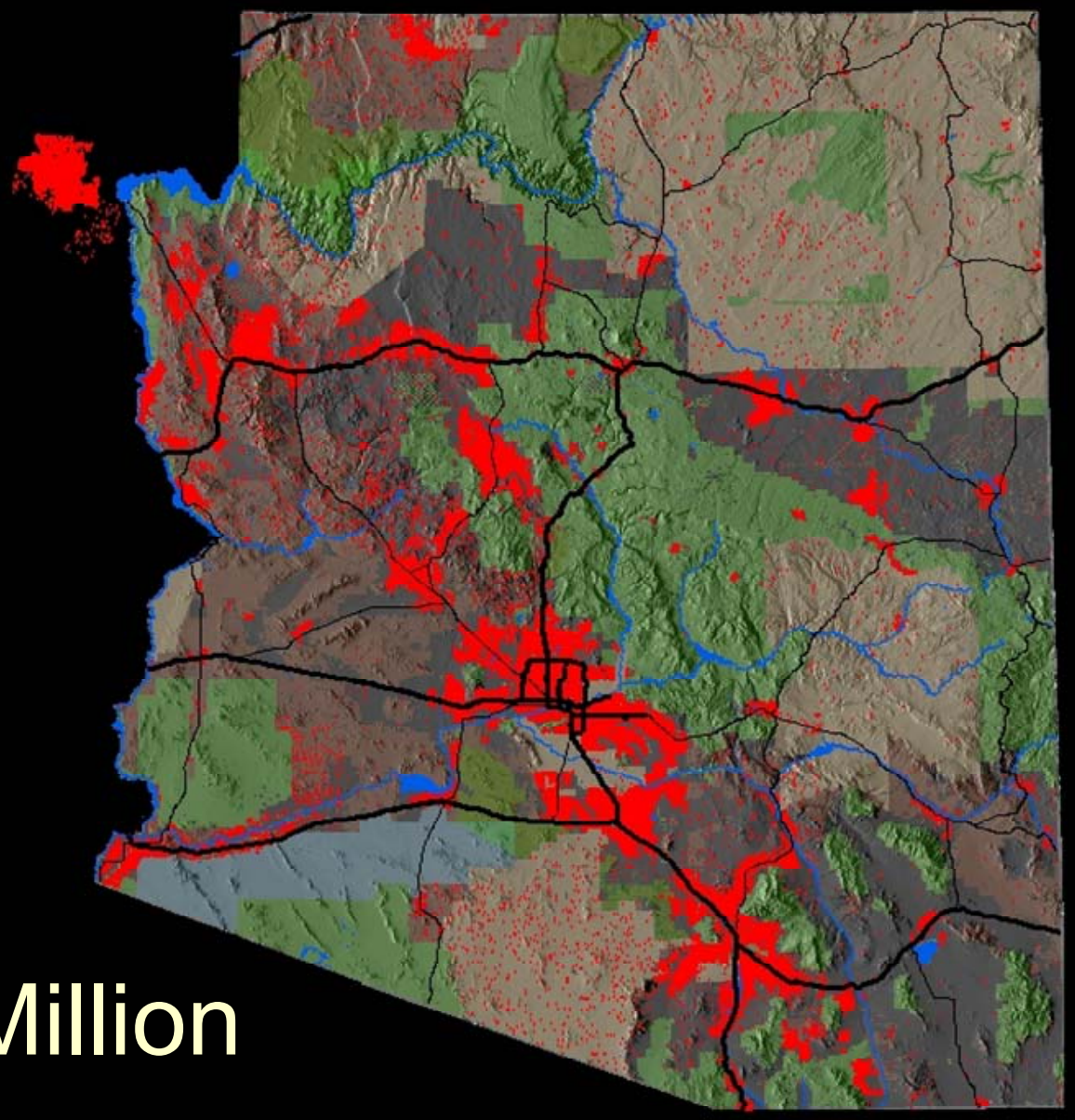
2000



5.1 Million People

MARICOPA ASSOCIATION of GOVERNMENTS

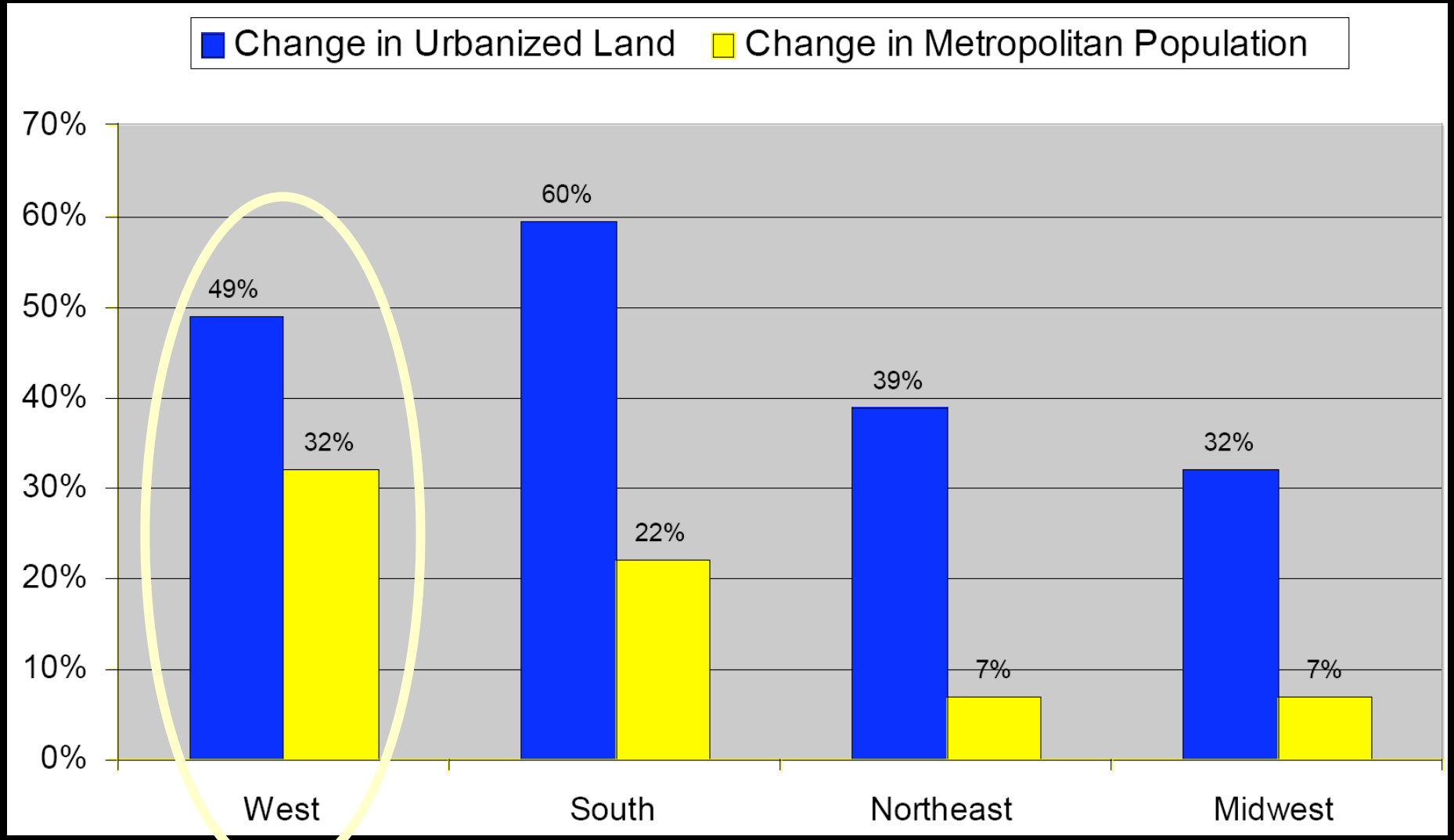
2050



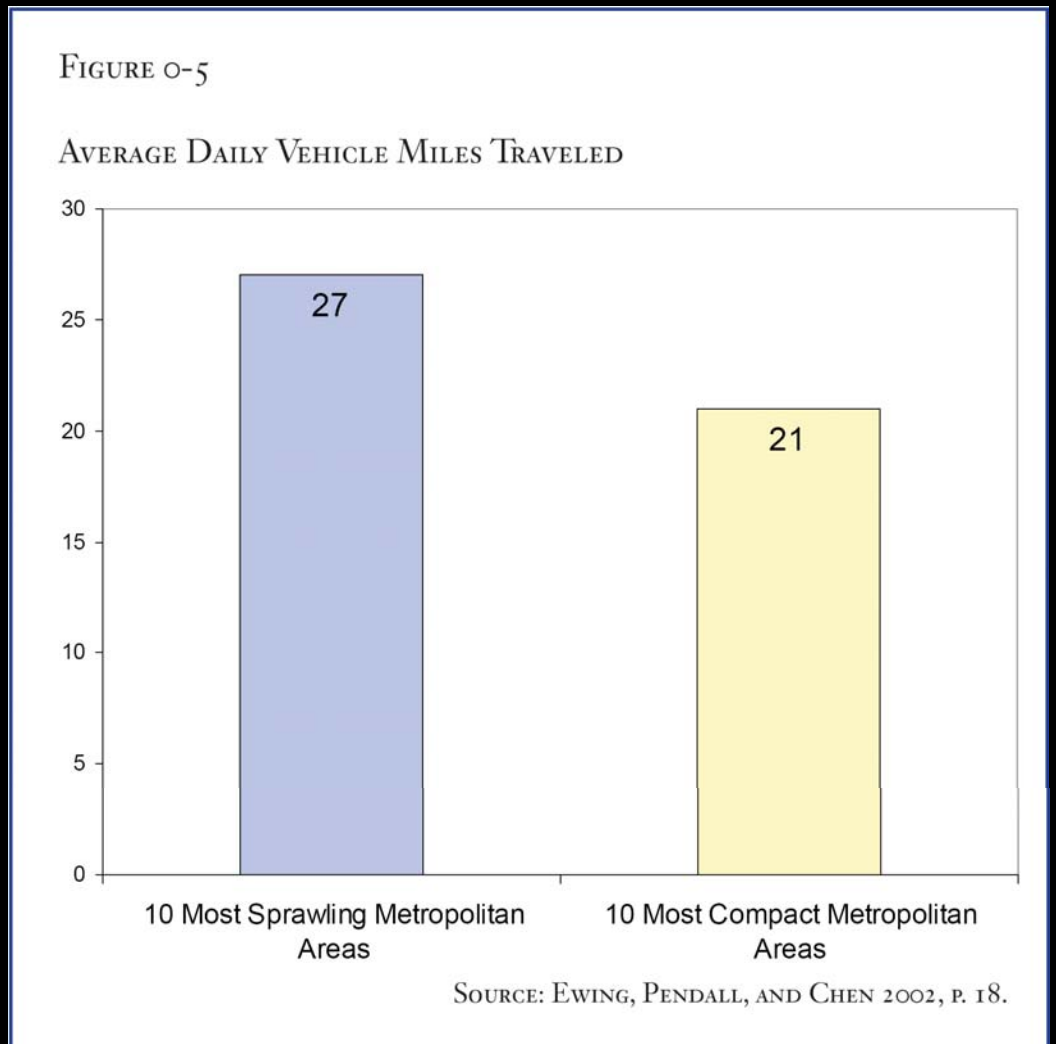
14.1 Million People

MARICOPA ASSOCIATION of GOVERNMENTS

Development Patterns



Urban Design & VMT



- Compact cities generate less VMT/capita
- The difference (>20%) is permanent

Source: Growing Cooler

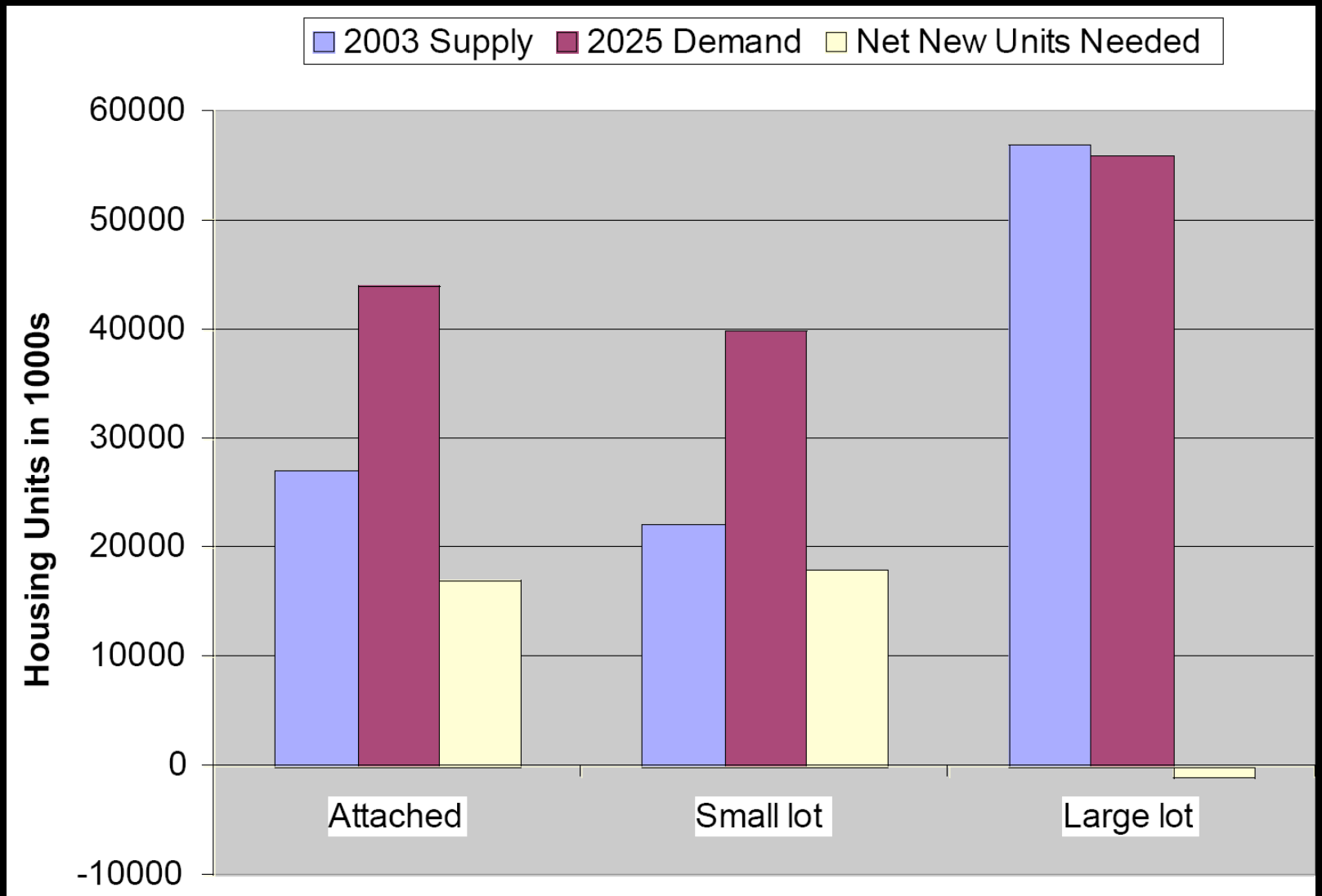
Location Efficiency

- Compact regional urban form
- Commercial development focused in transit-served centers
- Mixed use/functional neighborhoods
- Walkable environments
- New residential growth oriented to transit-served districts
- Responds to changing demographics & markets

Changing Demographics

- Married couples with kids no longer dominant - 23 % of households
- “Empty-Nesters” on the rise
- Importance of the “Creative Class”
  - ✓ Multi-cultural
  - ✓ Knowledge-based industries
  - ✓ Single-person households seek “urbanity”

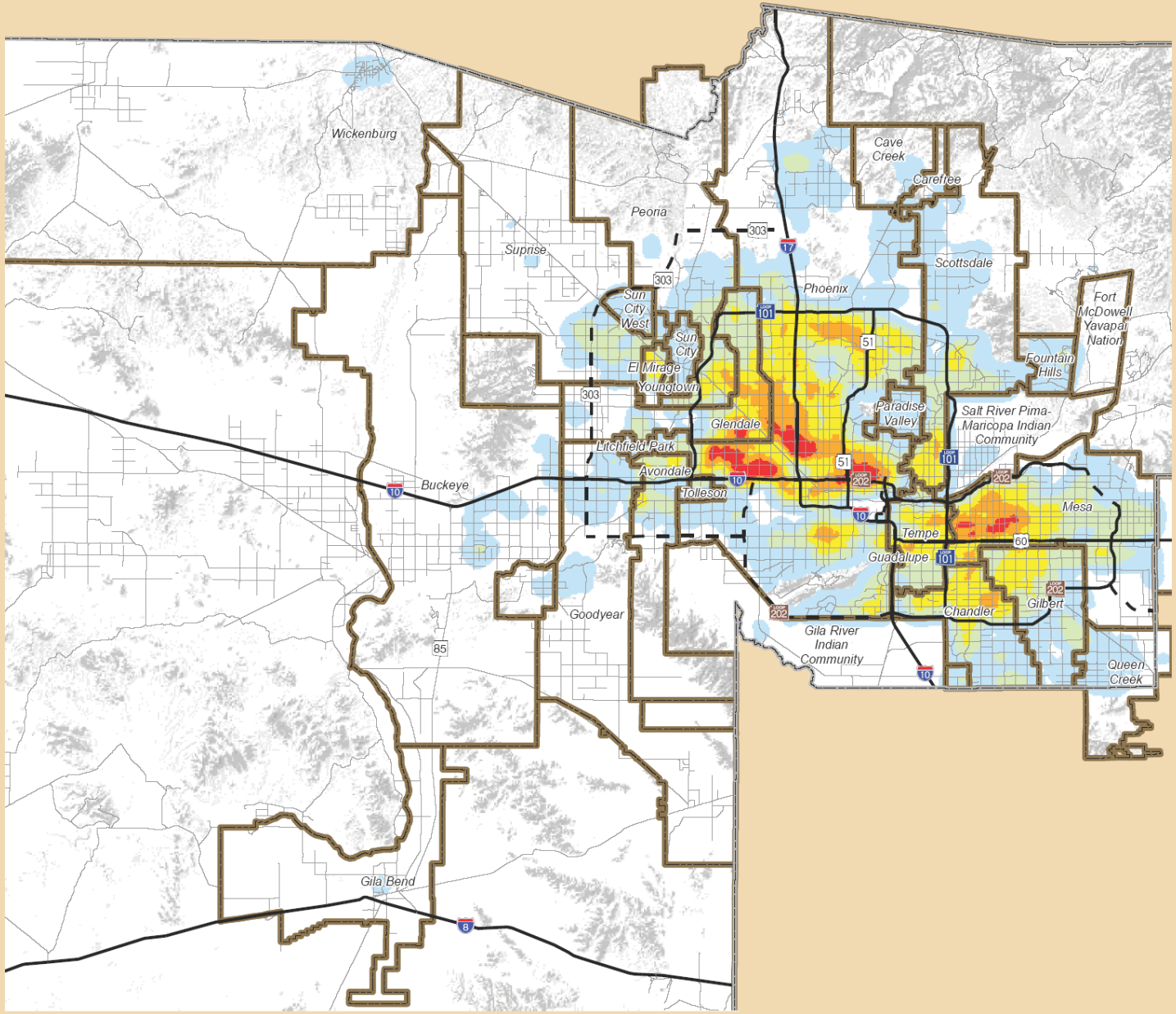
Housing Supply & Demand



MARICOPA ASSOCIATION of GOVERNMENTS

POPULATION CONCENTRATION 2005

Maricopa County, Arizona

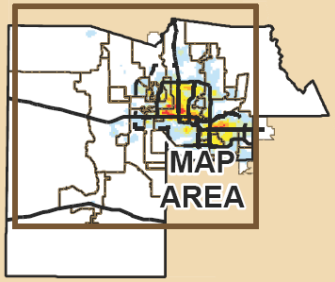


Persons Per Square Mile
(Maricopa County Average = 399)

- Less than 250
- 250 to 2000
- 2000 to 4000
- 4000 to 6000
- 6000 to 8000
- More than 8000
- Municipal Planning Area
- Maricopa County

Freeways/Expressways

- Existing
- Planned
- Major Roads



Map Prepared by Maricopa Association of Governments
Source: MAG 2007 Projections Concentration Grid

April 2007

0 25 50 75 100 Miles

N

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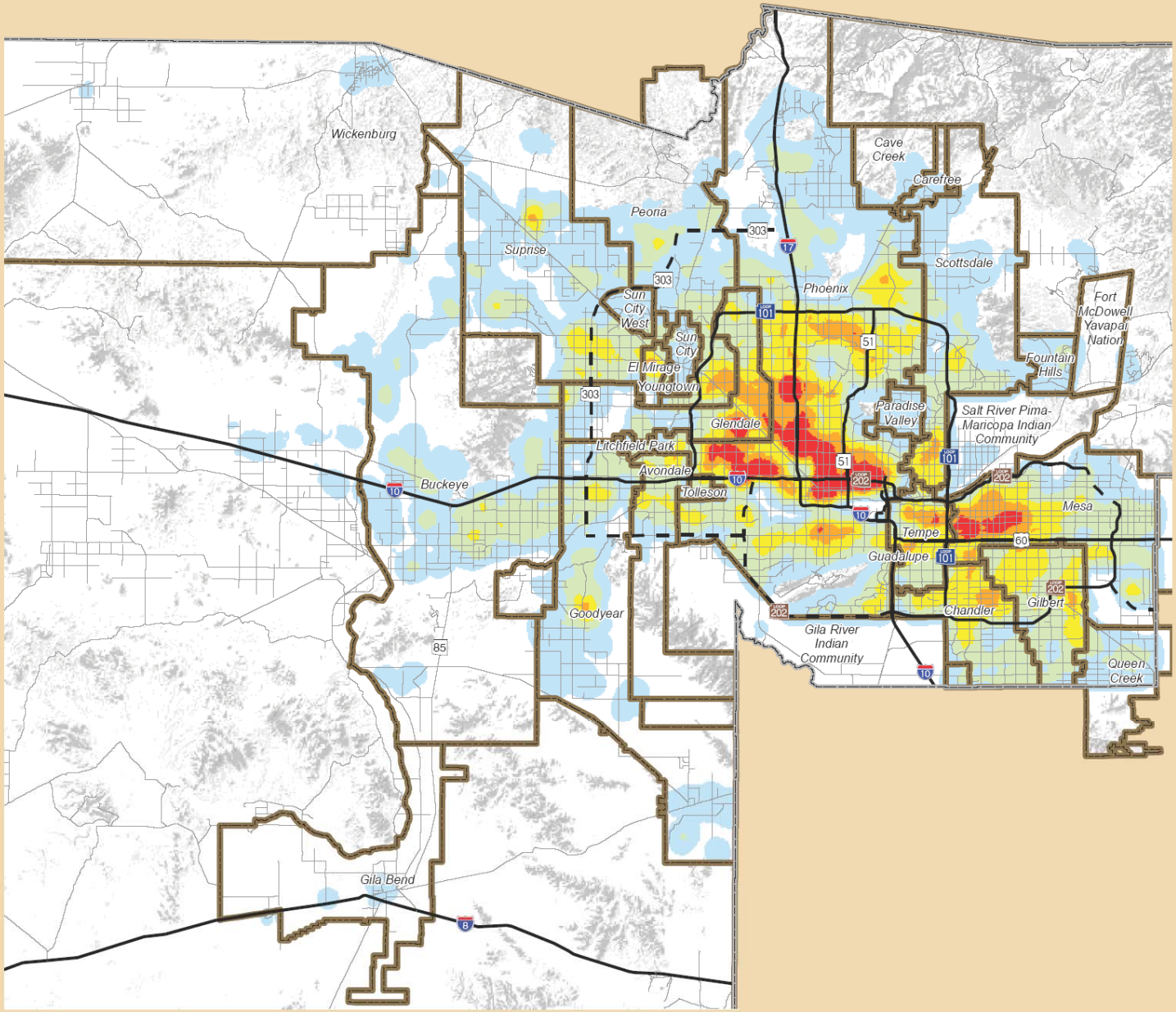
MARICOPA ASSOCIATION of GOVERNMENTS

POPULATION CONCENTRATION 2030

Maricopa County, Arizona

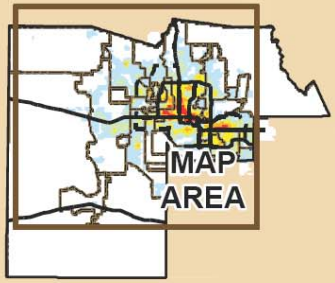


Persons Per Square Mile
(Maricopa County Average = 665)

- Less than 250
- 250 to 2000
- 2000 to 4000
- 4000 to 6000
- 6000 to 8000
- More than 8000
- Municipal Planning Area
- Maricopa County

Freeways/Expressways

- Existing
- Planned
- Major Roads



Map Prepared by Maricopa Association of Governments
Source: MAG 2007 Projections Concentration Grid

April 2007

Miles
0 25 50 75 100

N

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The LEM is sponsored by:

ILE

The Institute for Location Efficiency (ILE) is a national non-profit organization, founded by the Center for Neighborhood Technology, the Natural Resources Defenses Council, and the Surface Transportation Policy Project. ILE's mission is to promote strategies that reduce inefficient travel by locating stores, services, jobs, and homes close to each other and to public transportation, so improving the quality of urban and suburban life. ILE's objective is to promote better understanding of location efficiency and its impact on public policy. The Location Efficient Mortgage® (LEM) is a trademark of ILE. For more information, call (614) 237-3815 or visit www.locationefficiency.com

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Fannie Mae is the largest non-bank financial services company in the world. It operates pursuant to a federal charter and is the nation's largest source of financing for home mortgages. Over the past 30 years, Fannie Mae has provided nearly $2.5 trillion of mortgage financing for over 30 million families. For more information call 1.800.7FANNIE (1.800.731.6643) or visit www.fanniemae.com

To learn more about the Location Efficient Mortgage® (LEM) or for a list of participating lenders, see the pages for your metropolitan area at: **www.locationefficiency.com** or contact the Institute for Location Efficiency at: **(614) 237-3815**.

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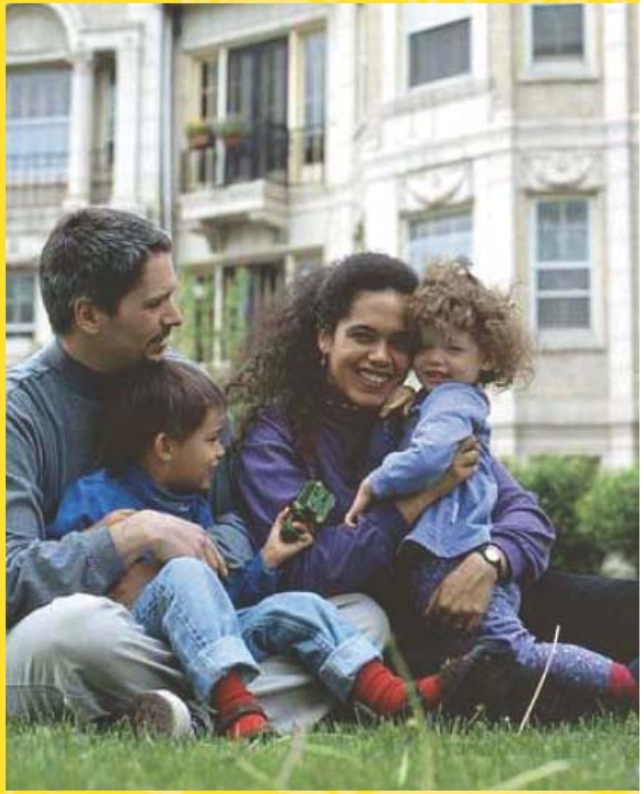
NOW IT'S EASIER TO OWN YOUR OWN HOME!

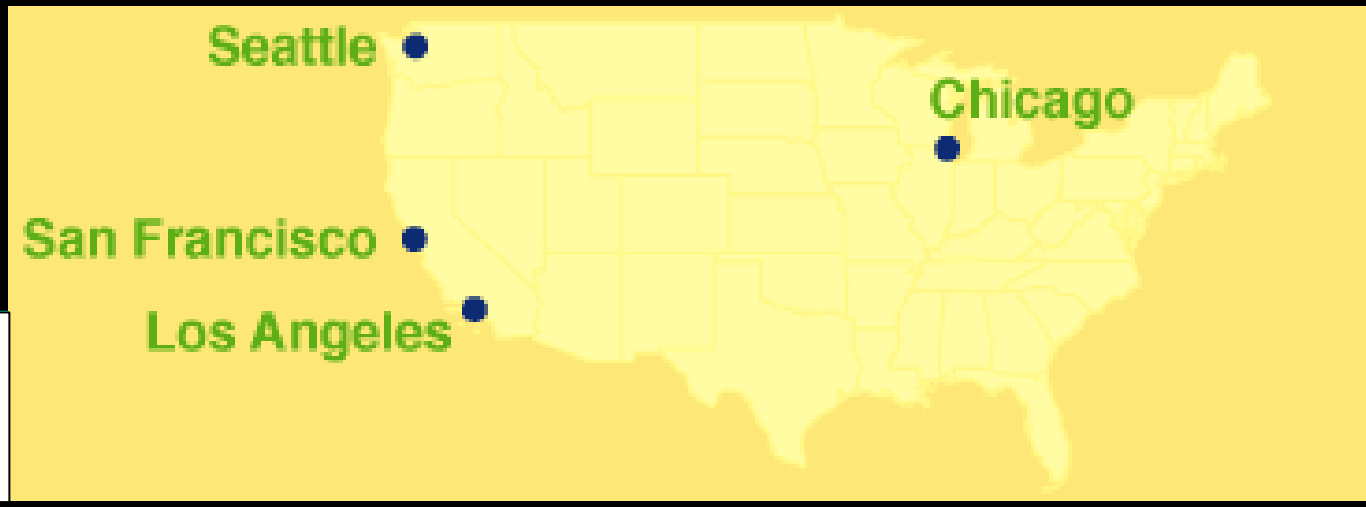


Introducing the
Location Efficient Mortgage® (LEM)

Location Efficient Mortgage

- Backed by FNMA (Fannie Mae)
- Increases home cost/income ratio in size of mortgage banks will loan
- Does not decrease payments or reduce interest rates
- Technically still available, but status in current mortgage markets is unknown

LEM Lenders



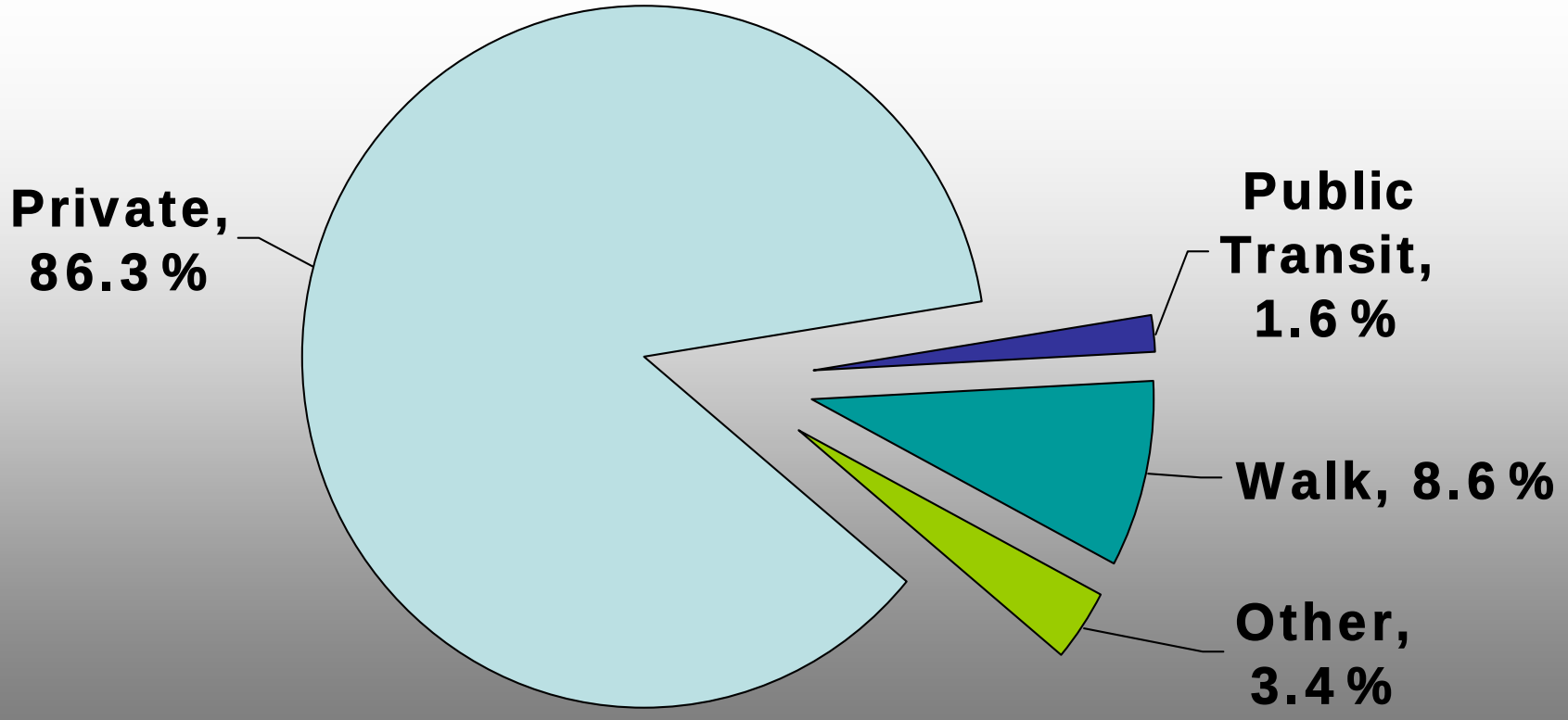
- Chicago:
  - ✓ Countrywide Home Loans Inc.
  - ✓ Draper & Kramer Mortgage Corp.
  - ✓ National City Mortgage Co.
- Seattle
  - ✓ HomeStreet Bank
  - ✓ Countrywide Home Loans Inc.
- San Francisco
  - ✓ Countrywide Home Loans Inc.
  - ✓ Funding One Mortgage Corporation
- Los Angeles
  - ✓ Countrywide Home Loans Inc.
  - ✓ Funding One Mortgage Corporation

PORTLAND PLAN

20-Minute Neighborhood:

- Walk to essential services
- Walk to retail
- Walk to work
- Walk to school
- Walk to amenities

2001 NPTS Mode Share (US)



Charlotte
TRACK
2

Charlotte

b) Complete Streets

Arizona/Maricopa Opportunities

Charlier Associates, Inc.

ADOPT A HIGHWAY
LITTER CONTROL
NEXT 2 MILES
DTRIC INSURANCE
ROAD W
STARTS APR.
M-F 8:30AM
ANTICIPATE
NCP 670
GFX

Honolulu

Streets Designed for Use by All Modes

Boston

Complete Streets Objectives

- Economic resiliency
- Household access & mobility
- Personal freedom & opportunity

San Francisco

c) Value-Added Design

Arizona/Maricopa Opportunities

Charlier Associates, Inc.

St. Louis Region
AFFTON AUTO ELECTRIC
EAST
30

Newbury, Boston

Neighborhood
Street
Abutting Property

Boulder

2:00 AM
TO 5:00 AM
2 HR
PARKING
8:00 AM
TO 6:00 PM
WEEKDAYS
MAK8551
Longmont

Brooklyn

ART MEDIA
SW 9TH AV
35
NEW
DECORATIVE PAPERS
Expo Center
GALLERY

Portland

Boulder

Anywhere, USA
DIRT CHEAP
CIGARETTES & BEER
SUPER
REGULAR
ONE WAY
DO NOT
ENTER
WRONG
WAY
FAMILY DOLLAR

Why Not:

- Invest in transportation primarily to spur redevelopment & reinvestment in existing urban places
- Invest in transportation in ways that <u>add</u> value to abutting lands & nearby neighborhoods

P
PARKING
Bon Marché
REI
Restaurants
Shops
Yves Delorme
FOOT ZONE
T-Mobile

Redmond, Wa

First Street Linear Park

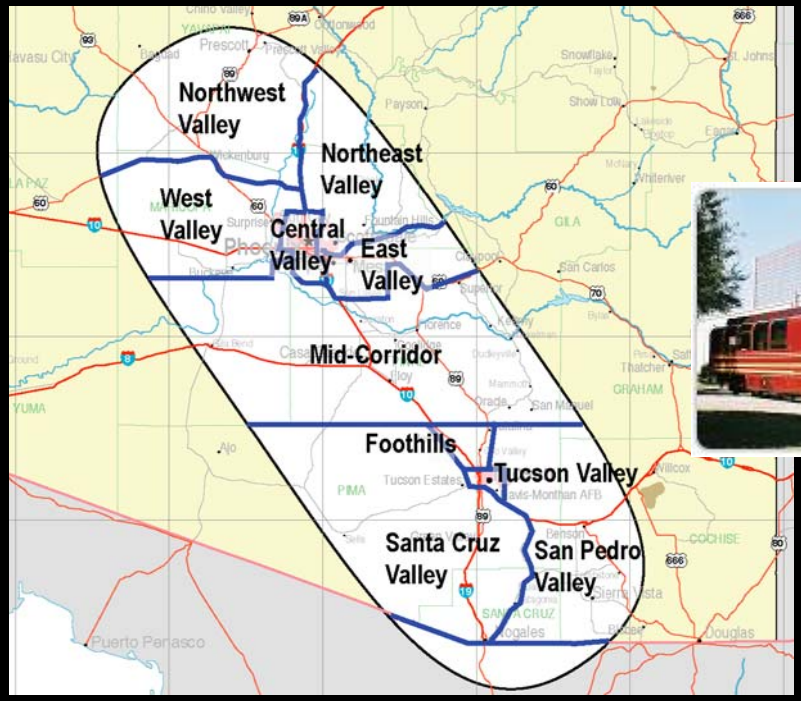
Street View in High Rise District

d) Transit & Intercity Rail

Arizona/Maricopa Opportunities

Charlier Associates, Inc.

Intercity Rail



Active Intercity Rail Corridors

Finally…

Food for thought:

"We are all faced with a series of great opportunities…

… brilliantly disguised as insoluble problems."

John W. Gardner

2008 Election Outcomes

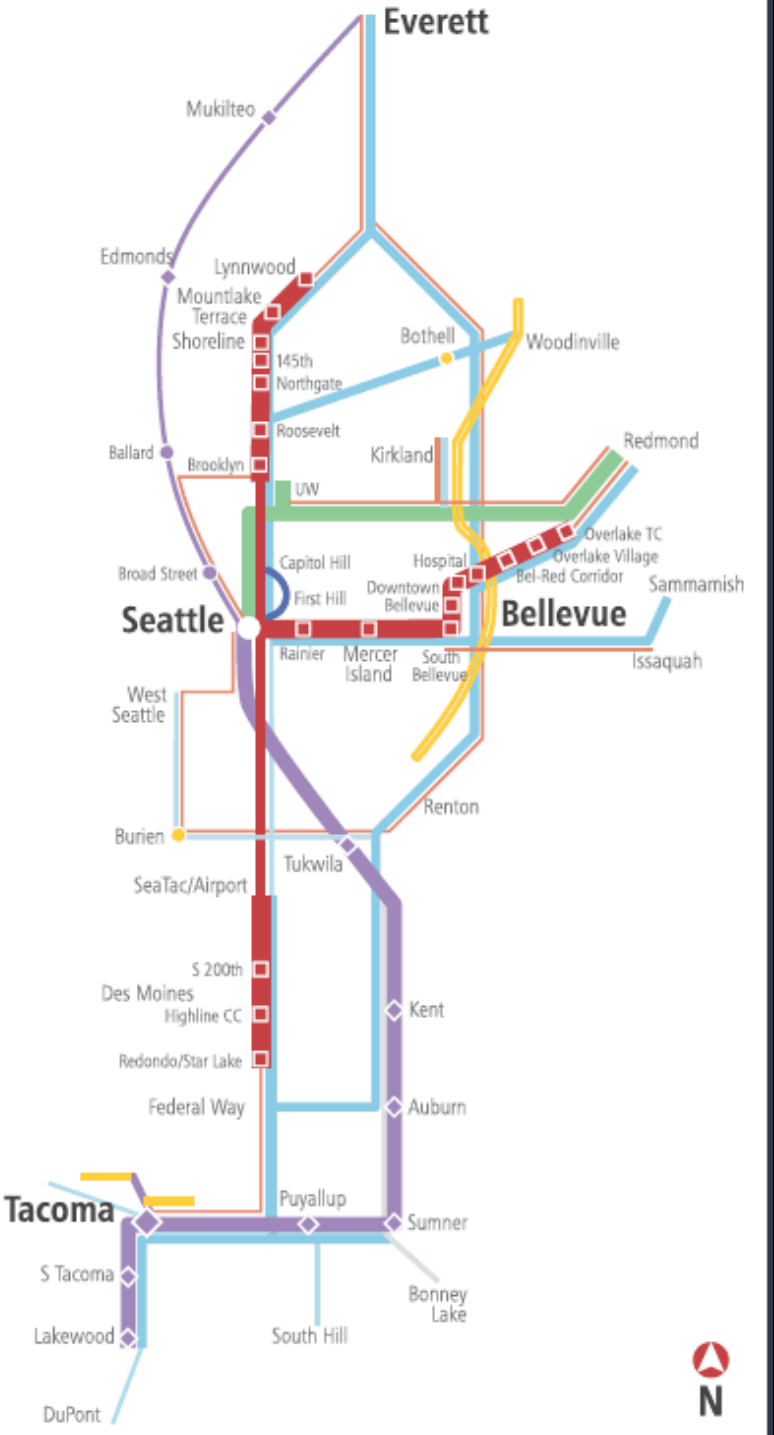
State & Local Transportation Initiatives

Charlier Associates, Inc.

2008 Transit Ballots

- 23/32 transit measures approved
- Spending authorized = $75 billion
- Examples:
  - ✓$10B for California High Speed Rail
  - ✓$8B for regional transit in Puget Sound
  - ✓$4B for elevated rail in Honolulu
- 12 measures approved earlier in year (including Flagstaff)

California HSR



Sound Transit 2 – Seattle Region

- Immediate express bus expansions: 17% increase beginning in 2009
- Commuter rail service: 65% more Tacoma-Seattle capacity
- Expanded light rail system: 36 new miles, creating 55-mile LRT system
- Easier access for transit riders: improve access & parking
- Accountability & local control: binding tax rollback, geographic equity
- Livable, sustainable communities: takes cars off roads, reduces pollution & saves time

Thank You
Photo: Courtesy AzDOT

www.charlier.org