



Challenges and Opportunities

Regional Approaches to Transportation Systems



Charlier Associates, Inc.

Regional Approaches

- Challenges
- Opportunities

Challenges

Regional Approaches



Challenges

1. Preparing for the post-petroleum era
2. Deciding where the people should live
3. Providing for prosperity



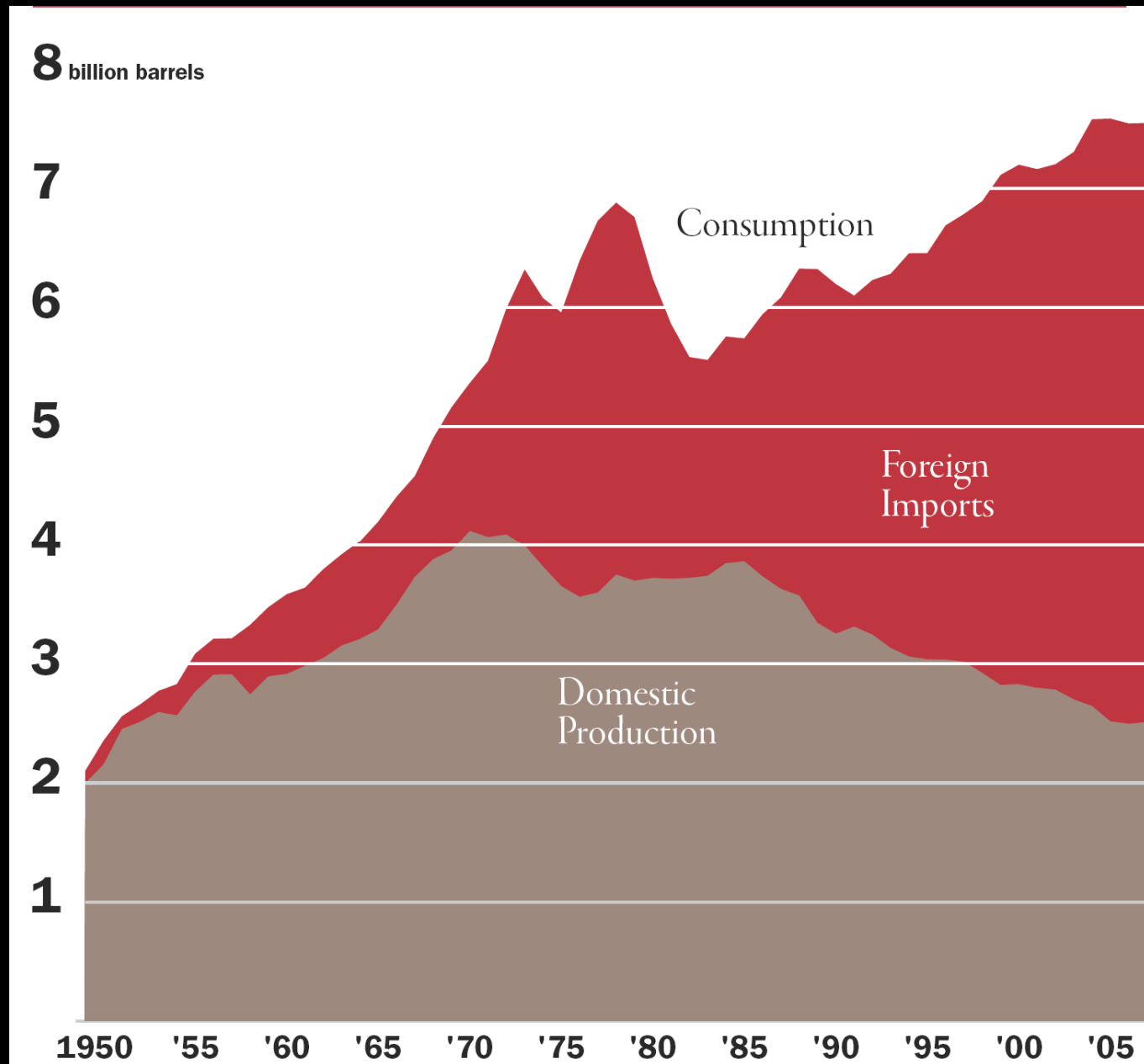
Challenge 1.

Preparing for the Post-Petroleum Era

Regional Approaches

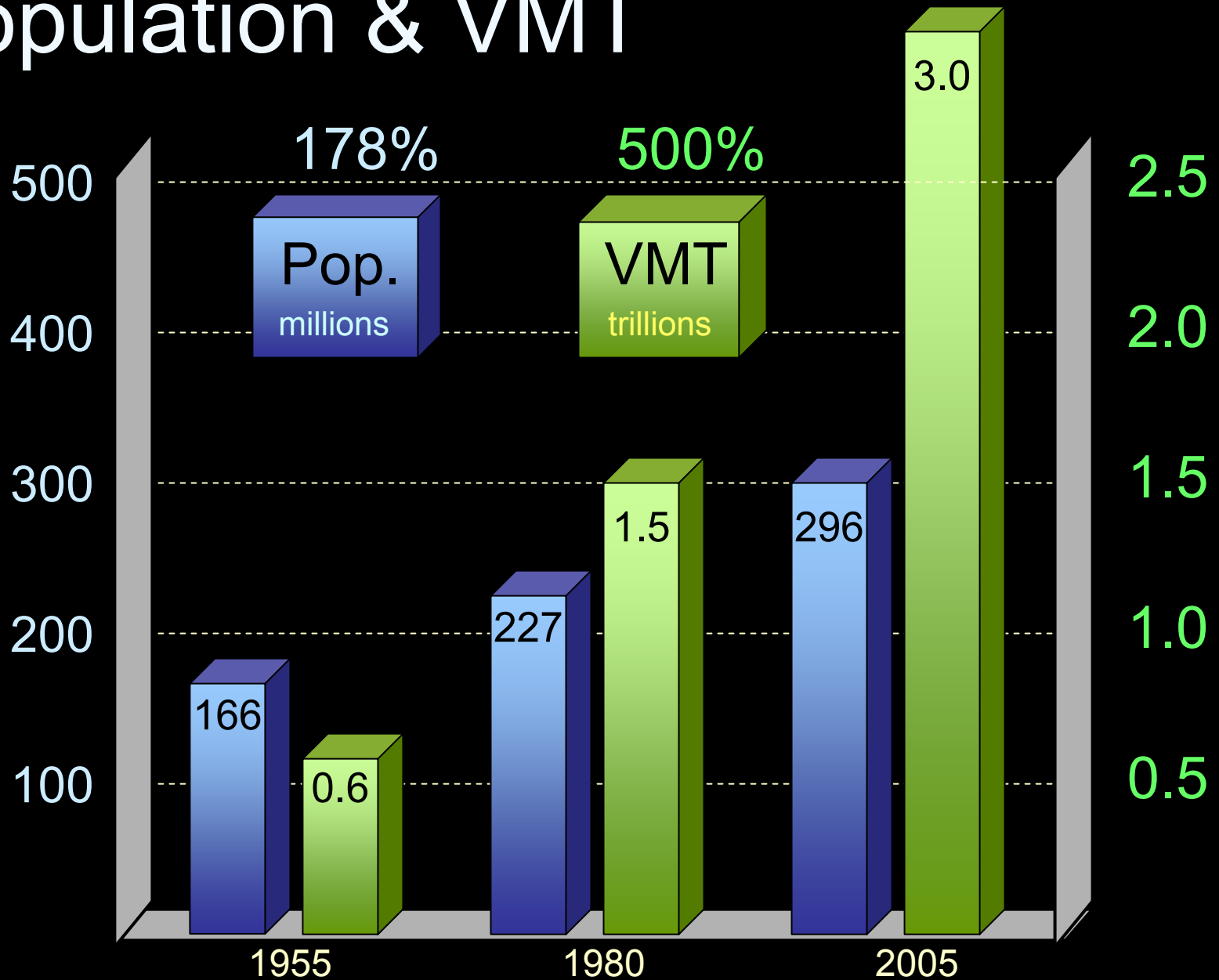


US Annual Petroleum Consumption



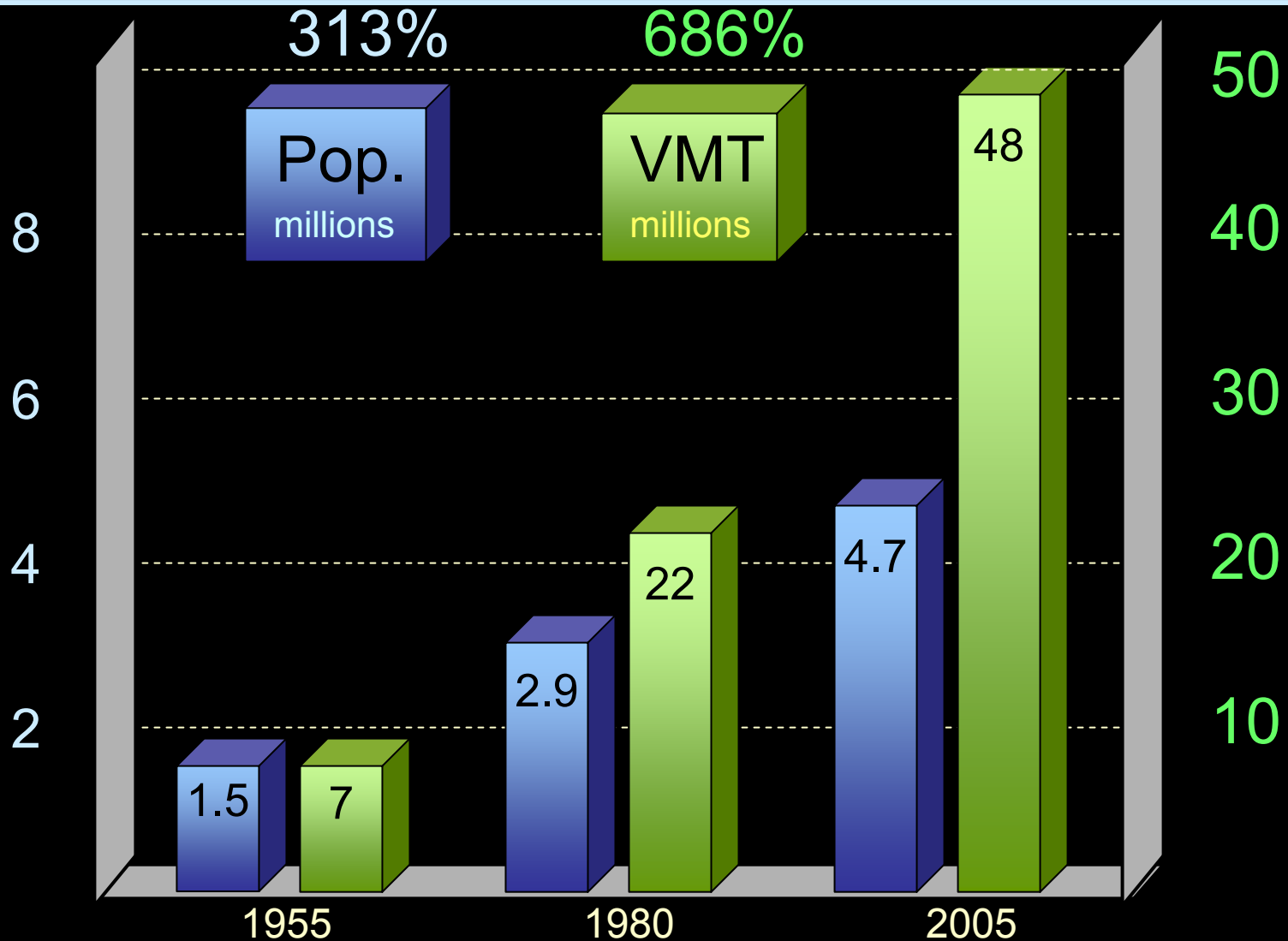
United States

Population & VMT



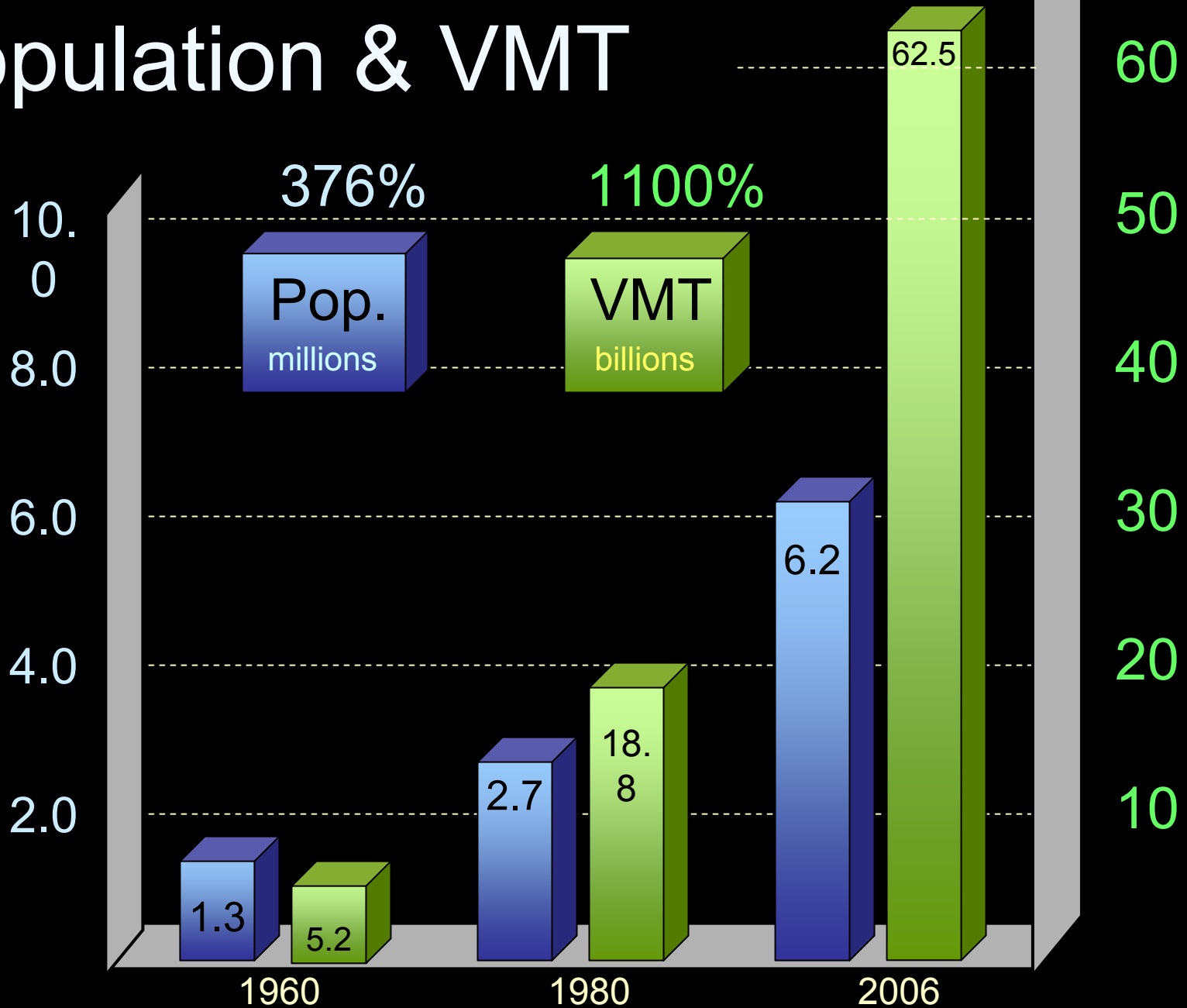
Colorado

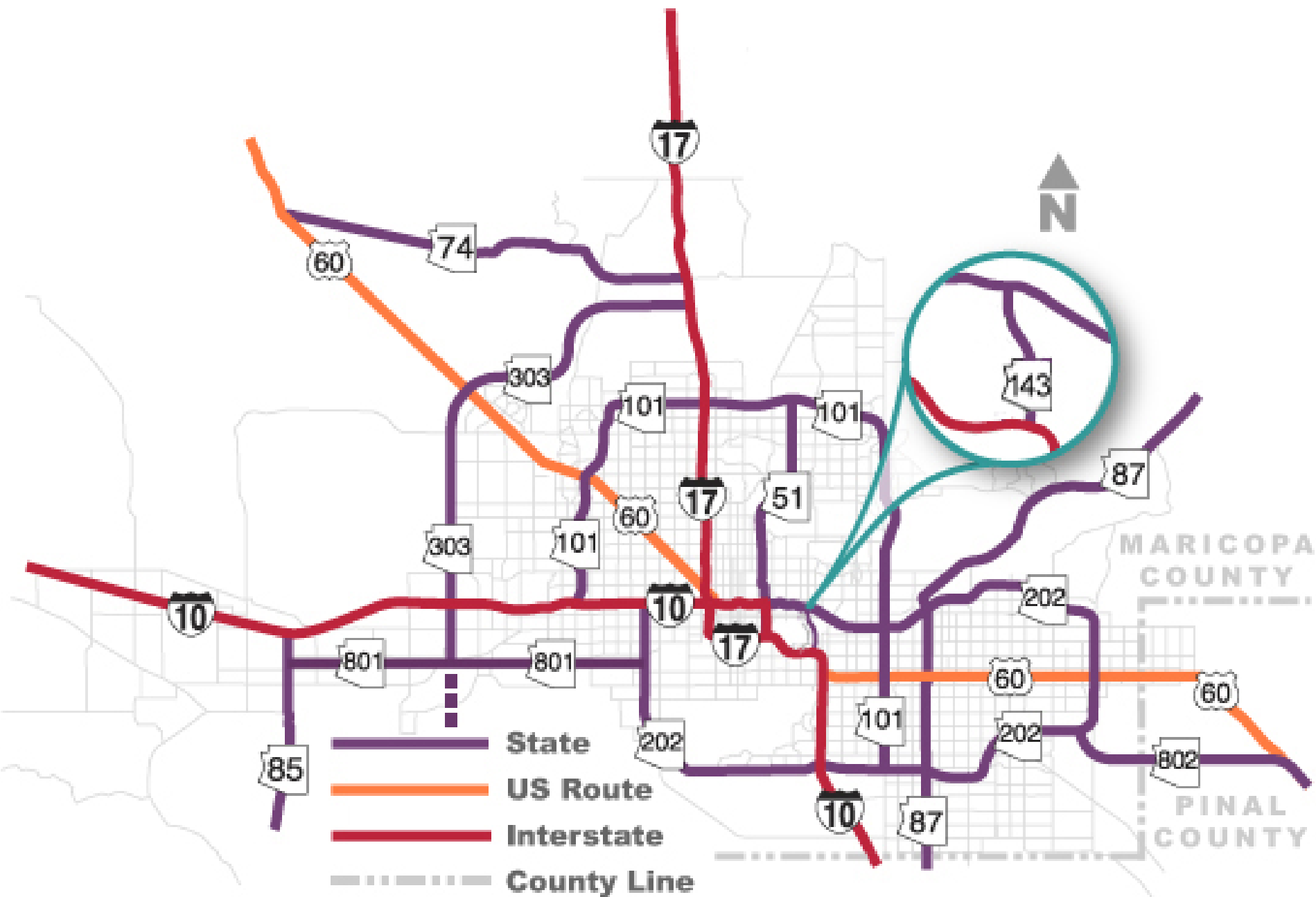
Population & VMT



Arizona

Population & VMT





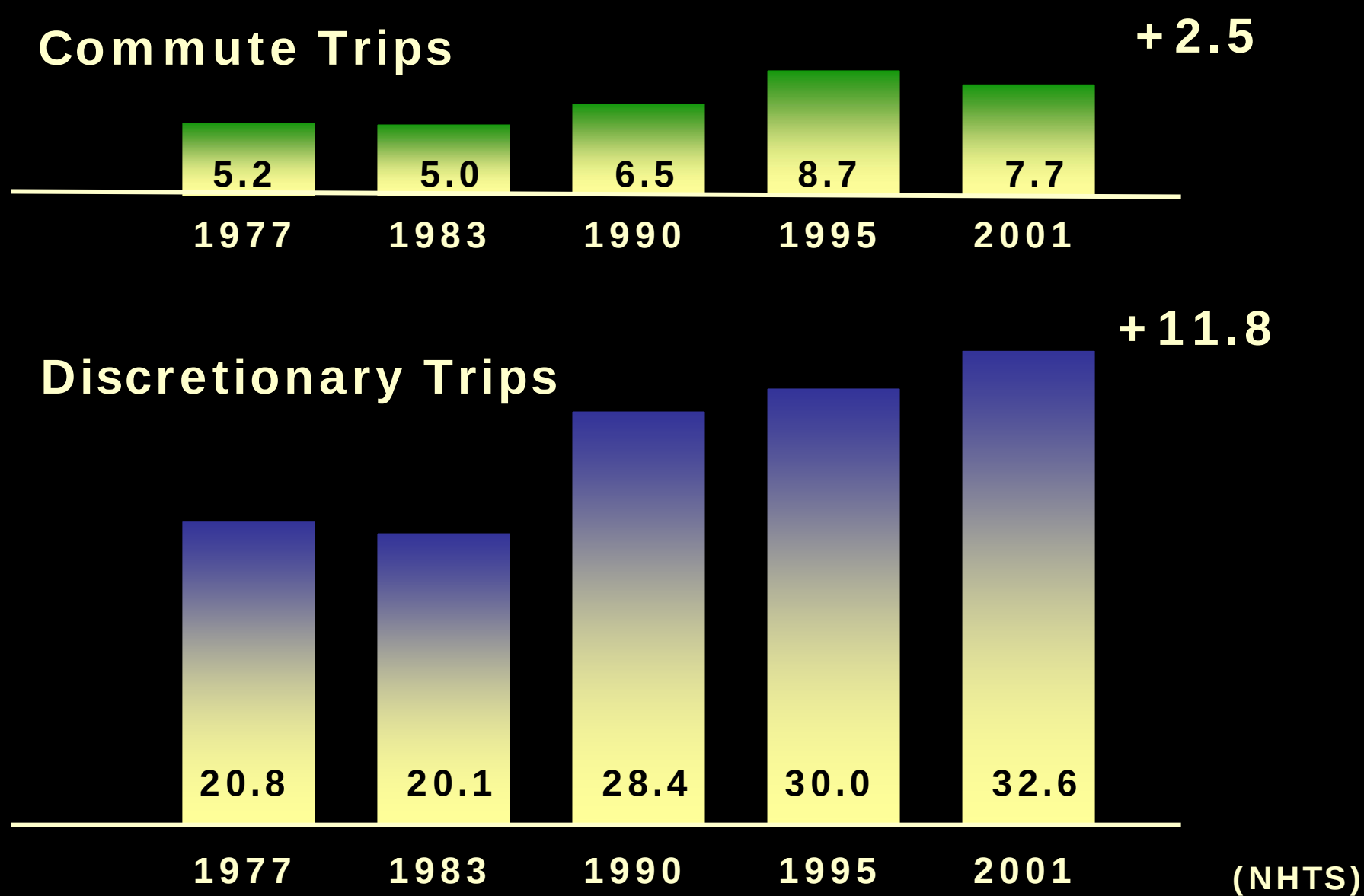
Phoenix Valley Freeways

TTI Data - 2007



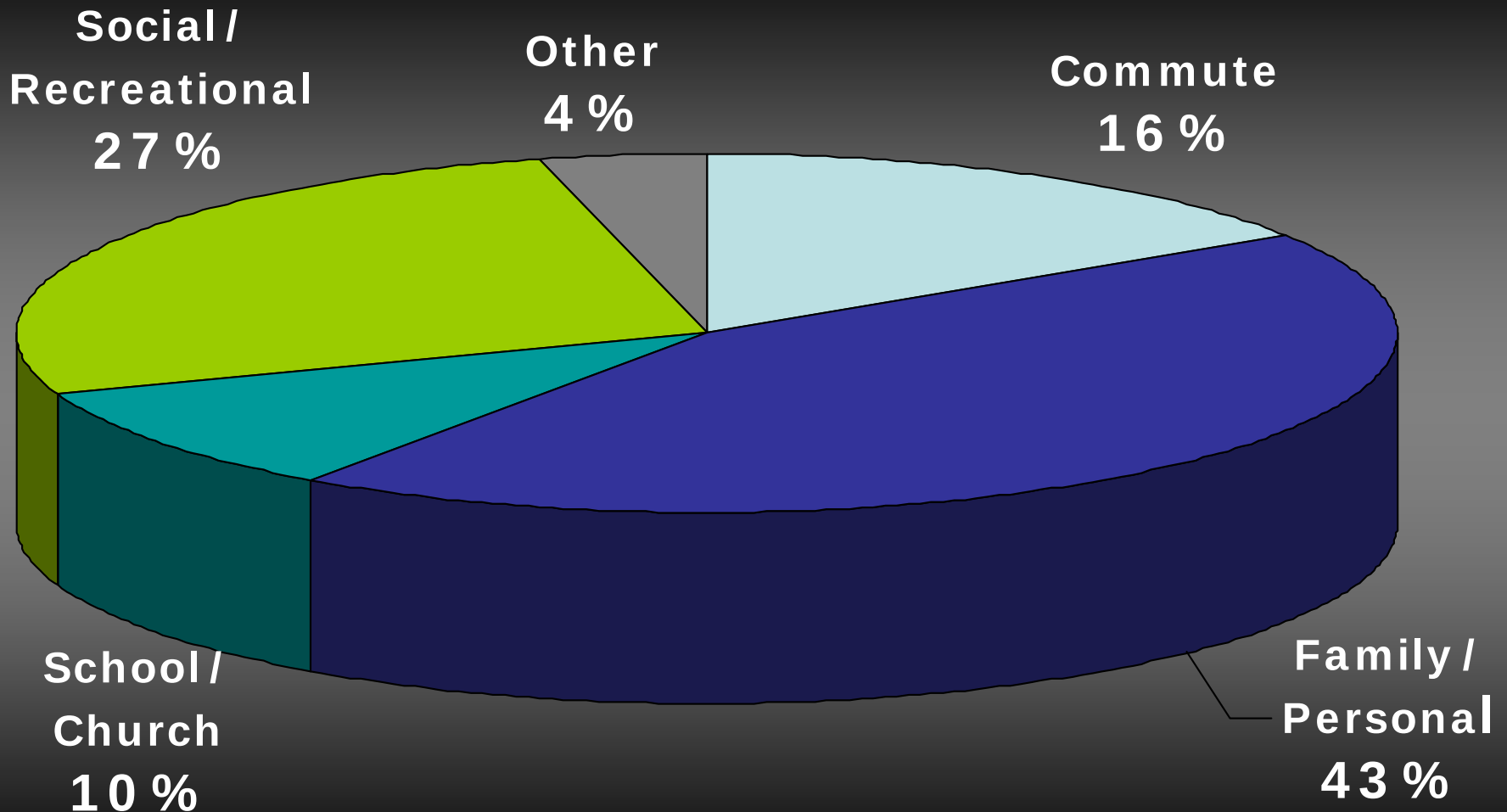
New roads needed to avoid increase in congestion:
412 lane miles per year

Daily Miles of Travel Per Capita



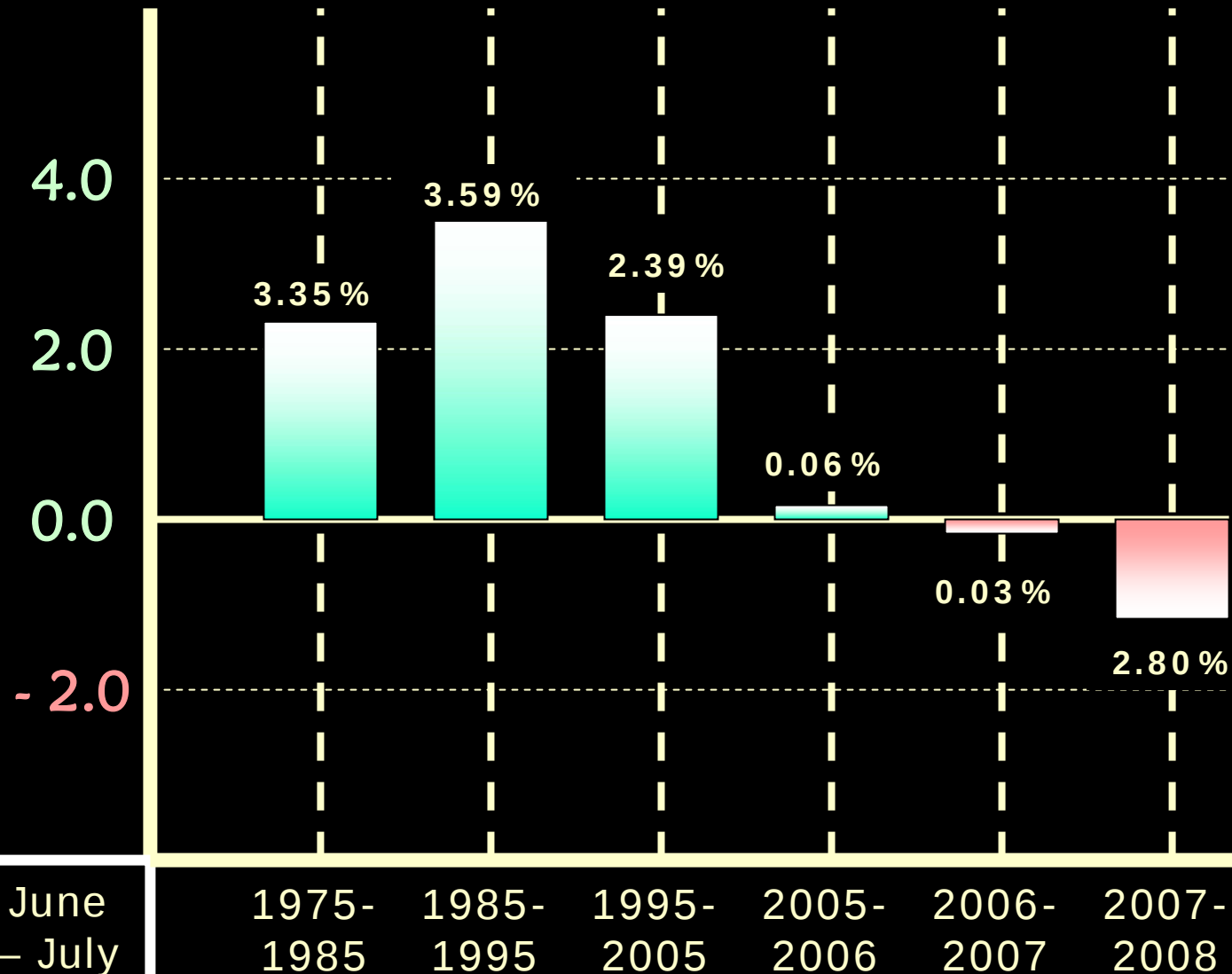
Daily Trips/Person

Source: US 2001 NHTS



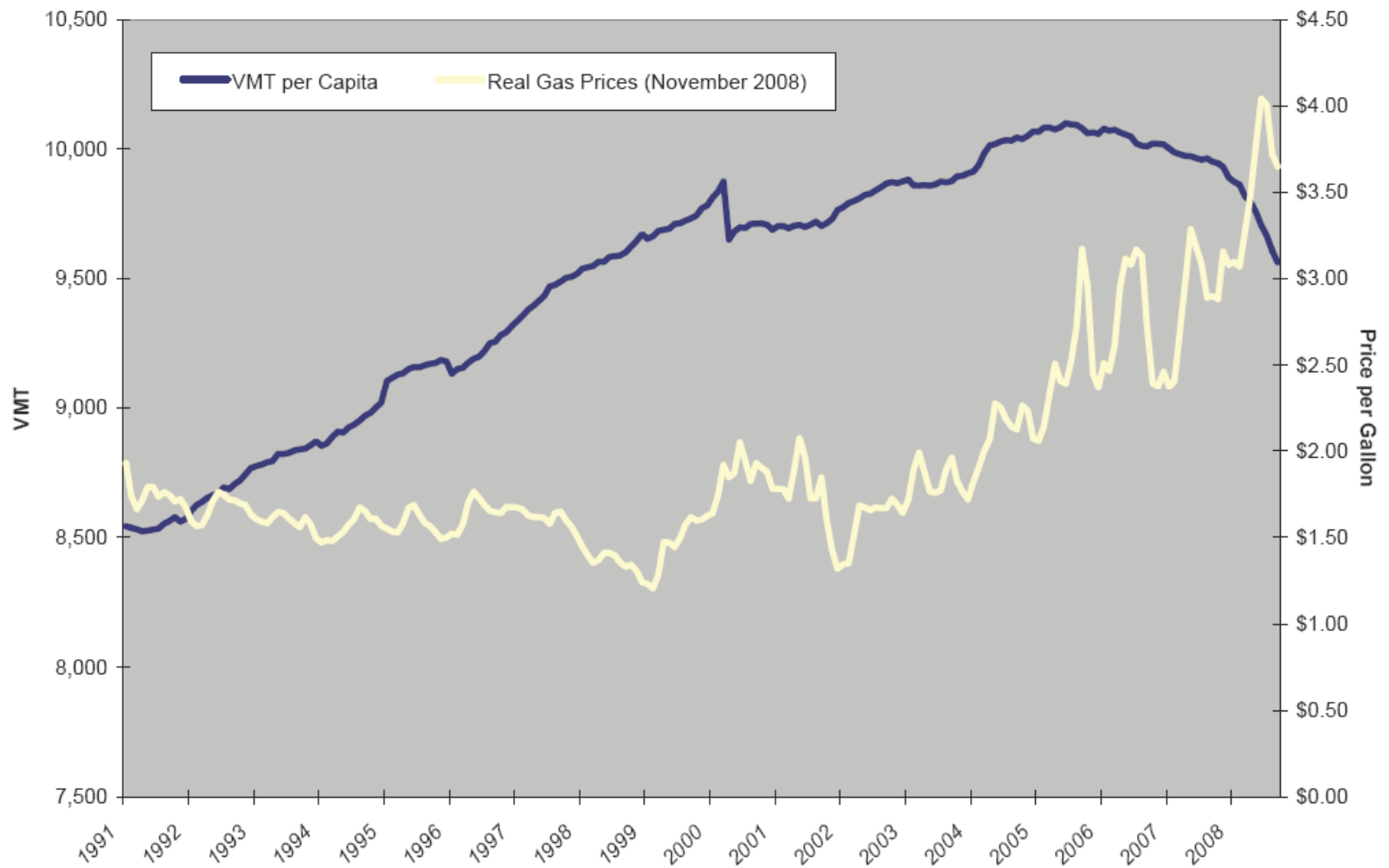
United States

Annual Rate of Change in VMT



June
– July

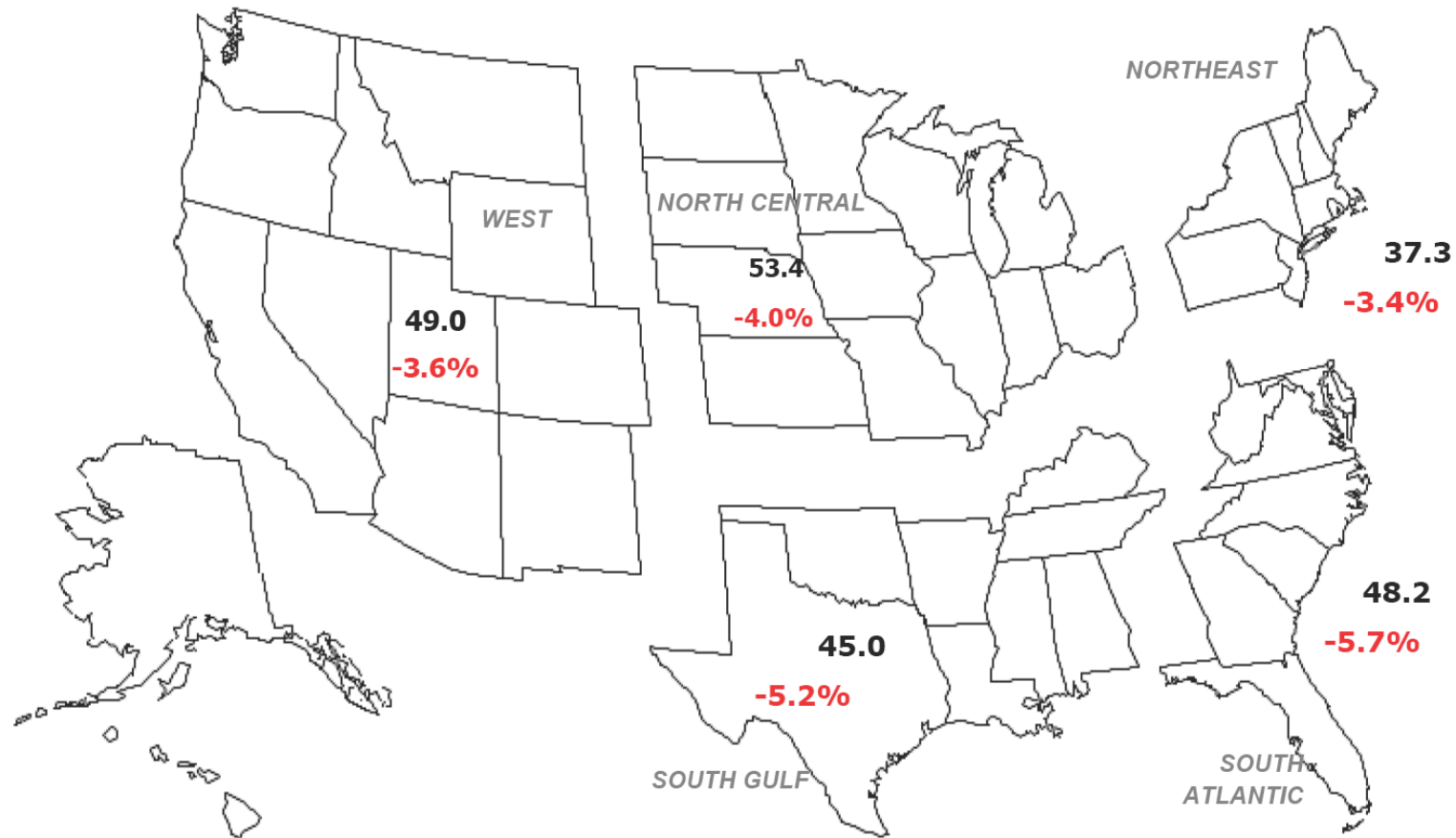
**Figure 1b. U.S. Vehicle Miles Traveled Per Capita, Annualized and Real Gasoline Pump Prices,
January 1991–September 2008**



Source: Traffic Volume Trends and Energy Information Administration

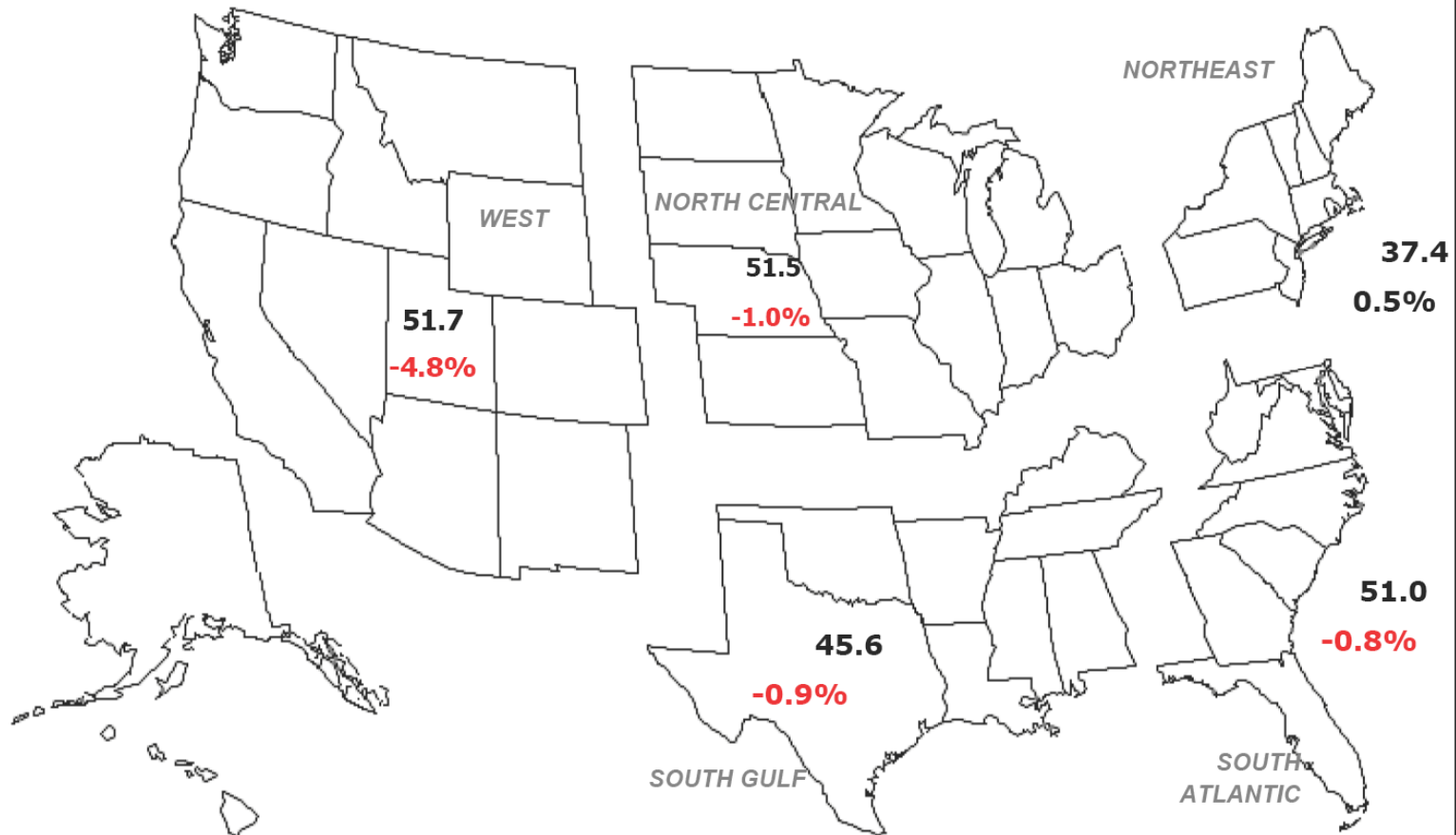
Monthly VMT Trend

Estimated Vehicle-Miles of Travel by Region - September 2008 - (in Billions)
Change in Traffic as compared to same month last year.



Monthly VMT Trend

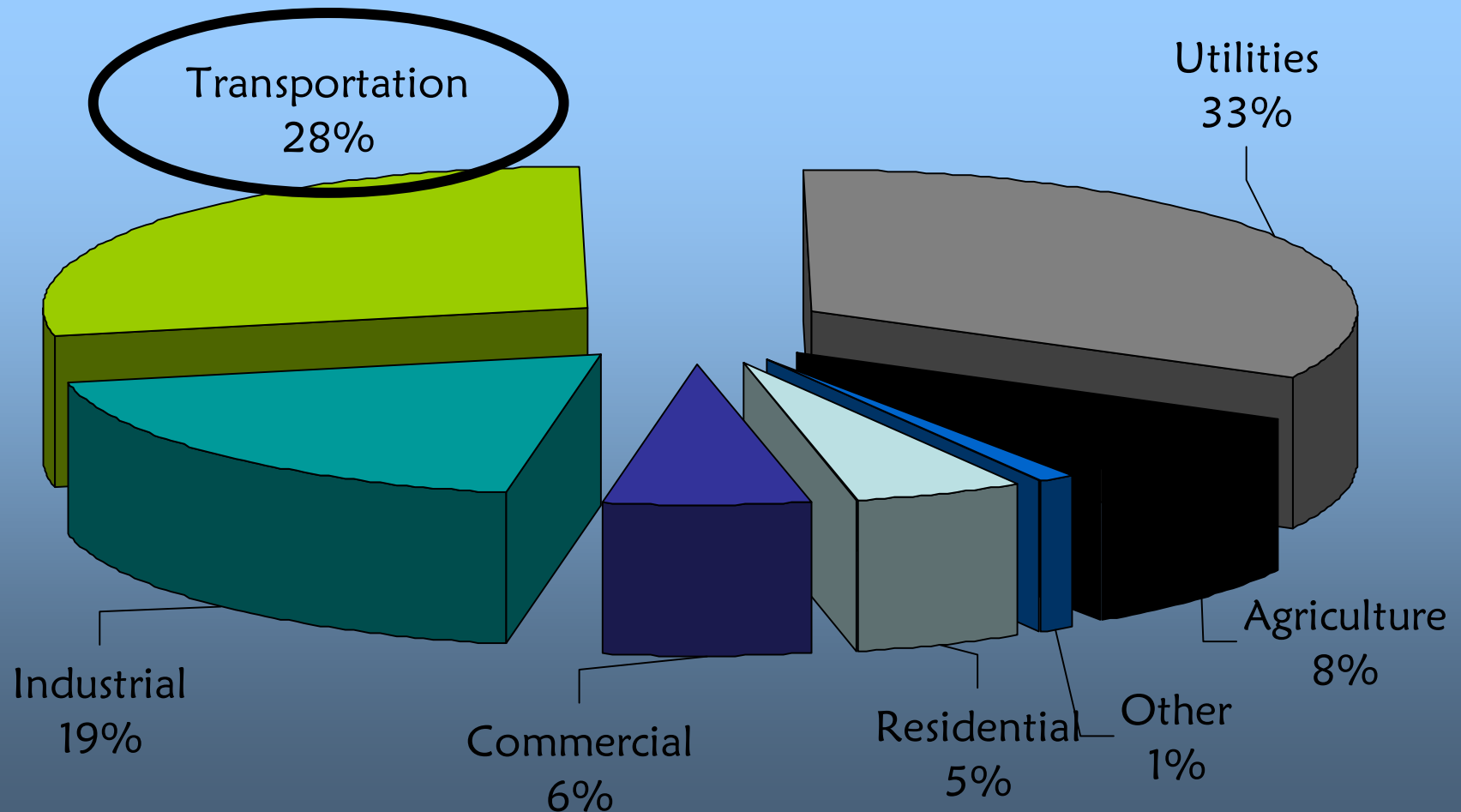
Estimated Vehicle-Miles of Travel by Region - December 2008 - (in Billions)
Change in Traffic as compared to same month last year.



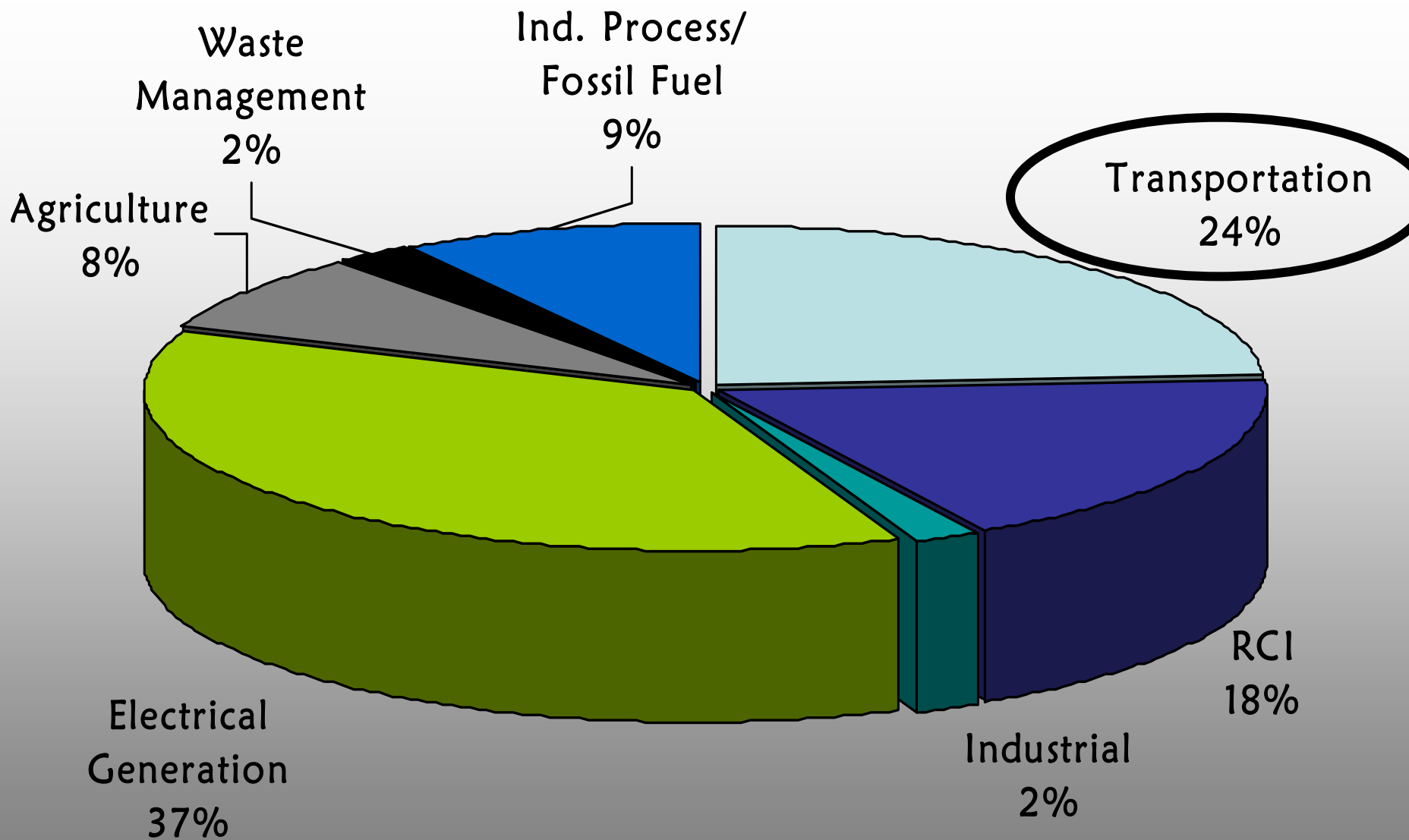
Why the VMT Trend Has Turned

- People do not believe the recent drop in oil prices is permanent
- Households have less money to spend and are hoarding cash

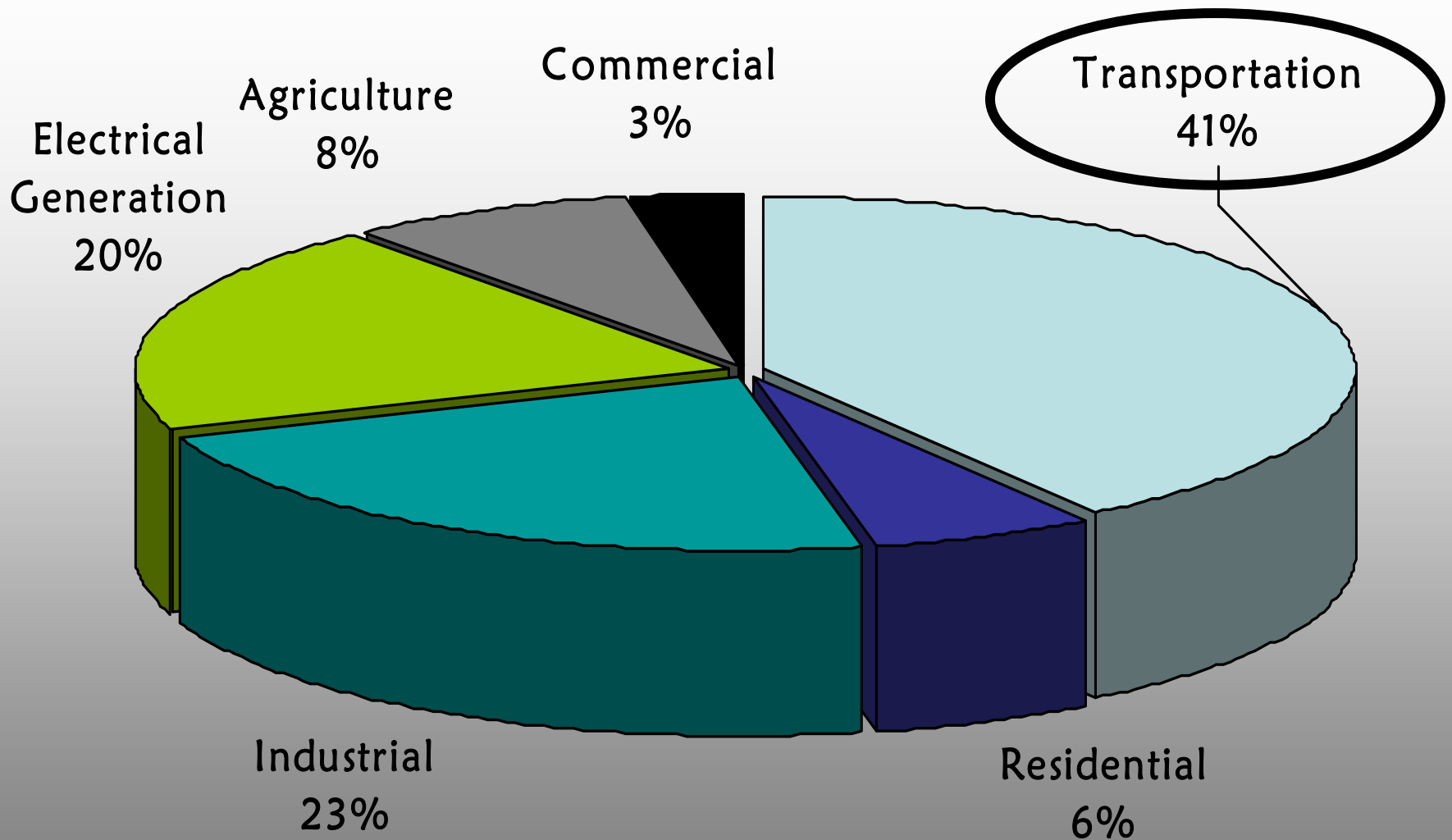
U.S. Greenhouse Gases



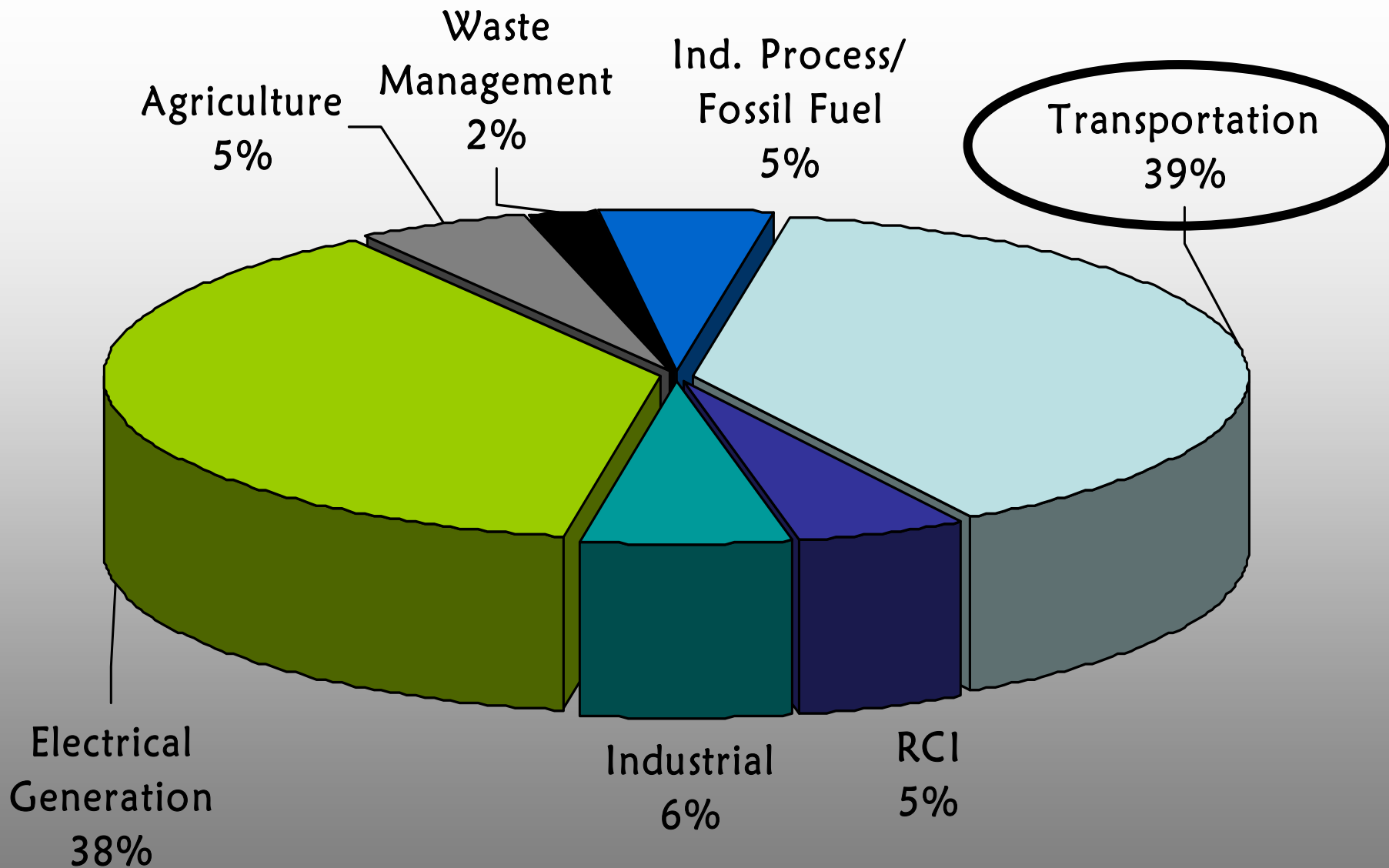




Colorado



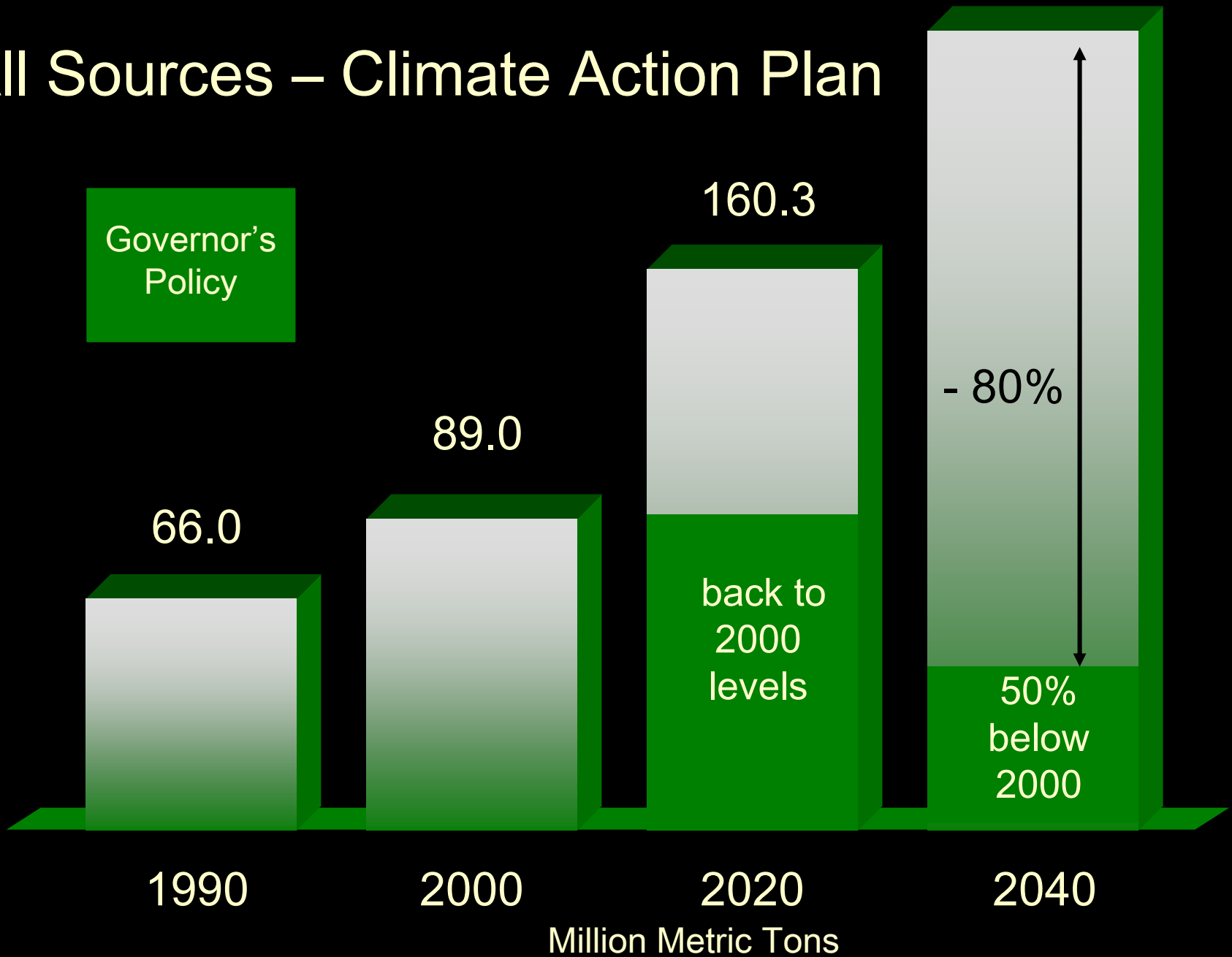
California



Arizona

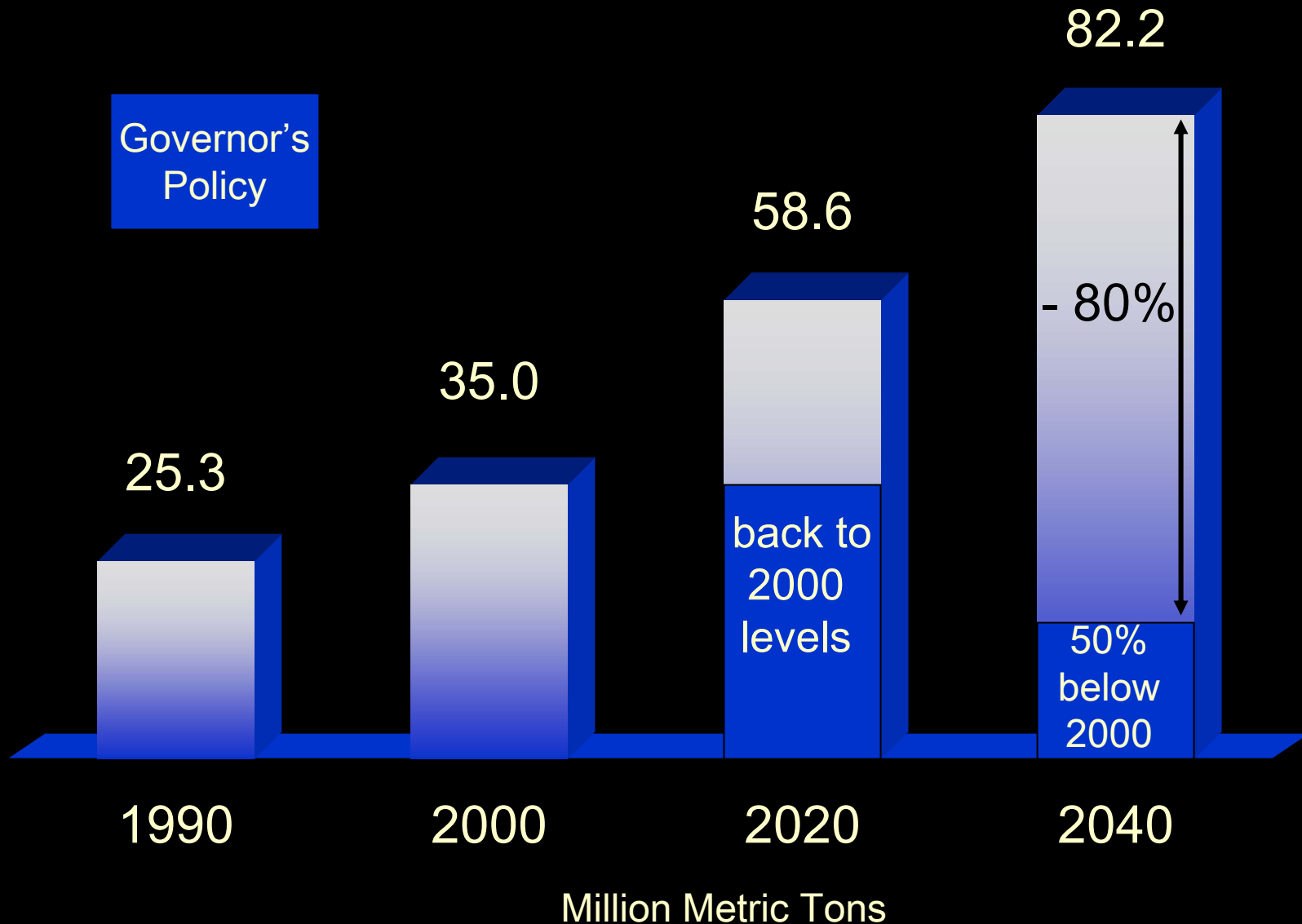
Arizona Gross Greenhouse Gas Emissions

All Sources – Climate Action Plan

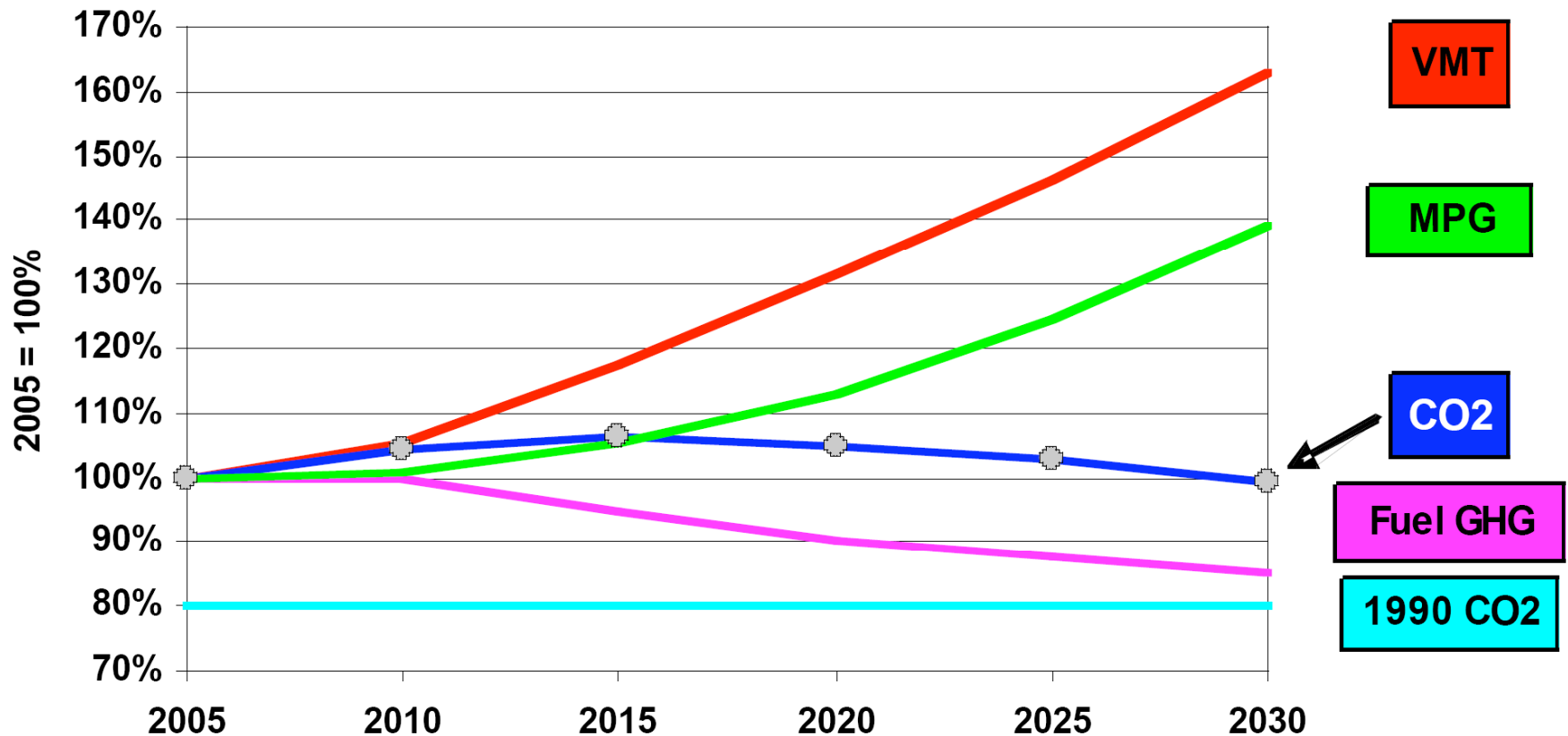


Arizona Gross Greenhouse Gas Emissions

Transportation Sources



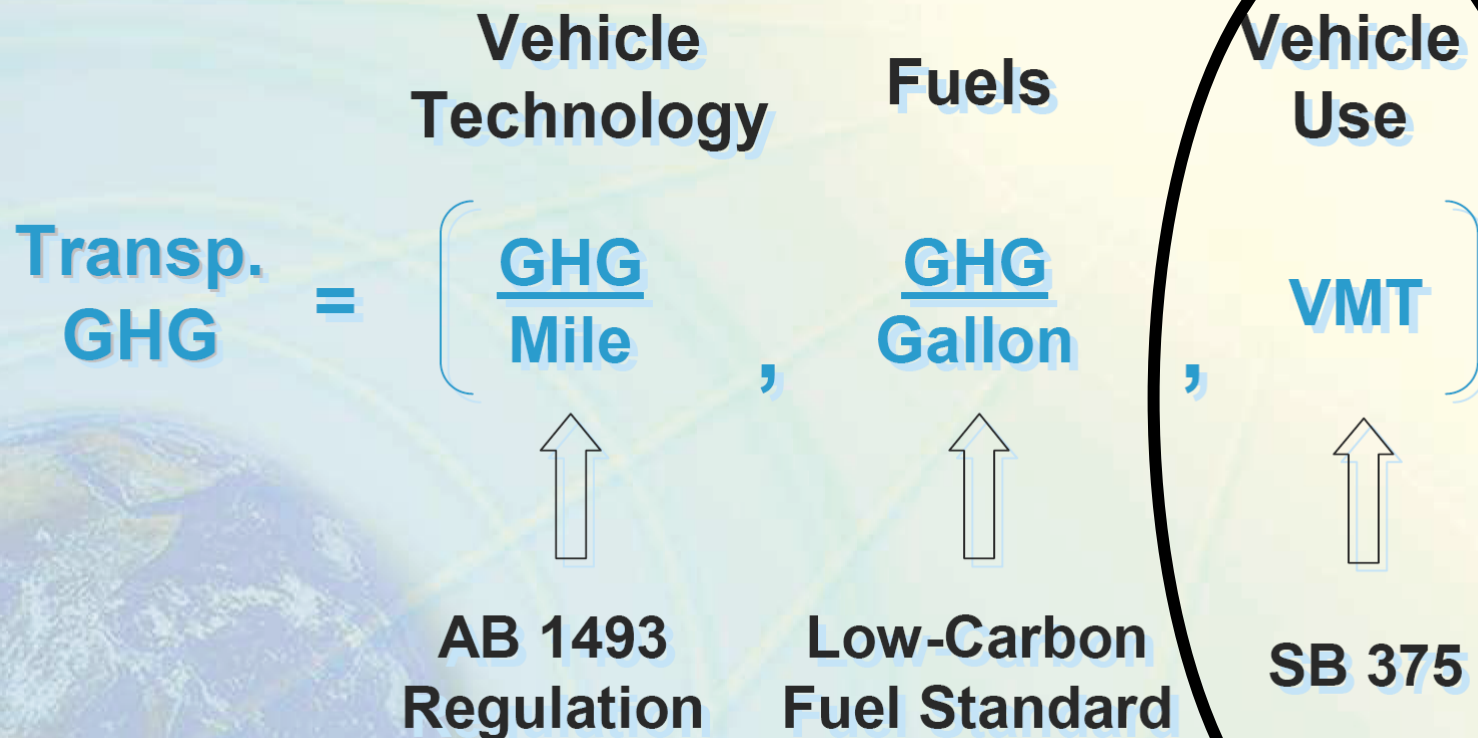
...Even With Very Stringent Standards



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

California's Approach to

Transportation GHG



Bottom Line:

Preparing for the Post-Petroleum Era

- The post-petroleum era IS NOT the post-car era, but VMT growth will abate
- Your traffic forecasts are wrong
- The VMT trend is being driven by household economics, not by policy
- Local & regional actions to reduce GHG emissions will be driven by economics & federal policy, not volunteerism

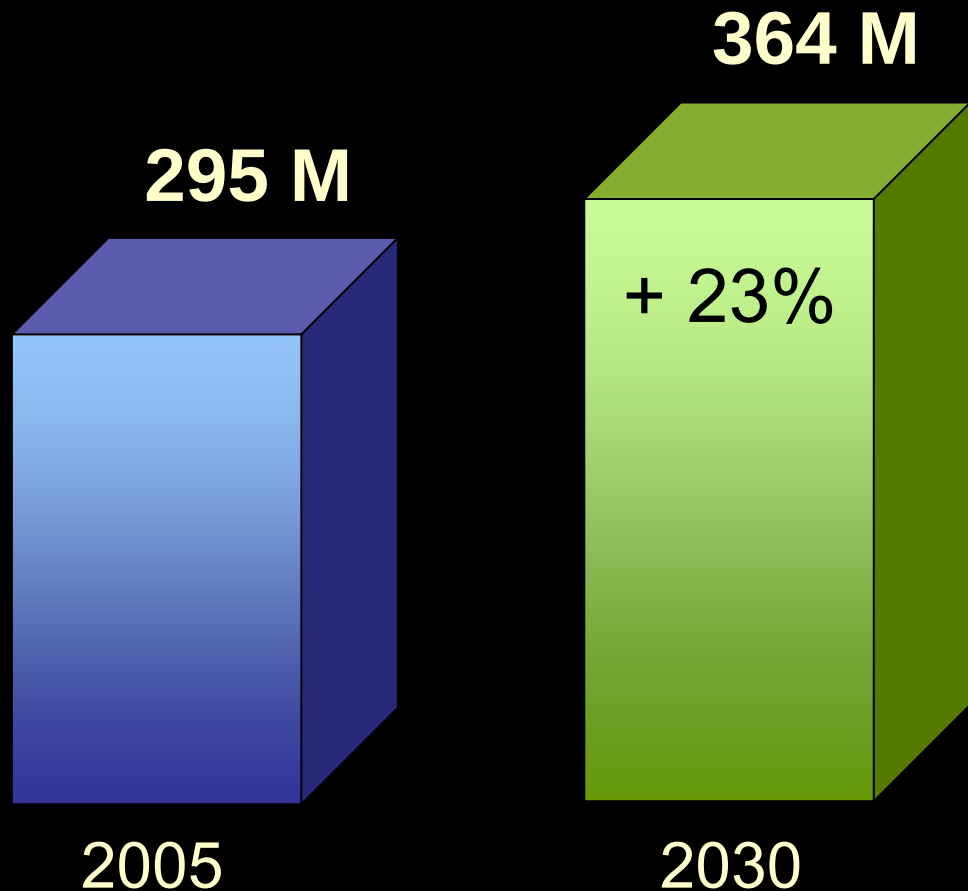
Challenge 2. Deciding Where the People Should Live

Regional Approaches



They Are Coming

US Population



Population Growth by States, 1990s

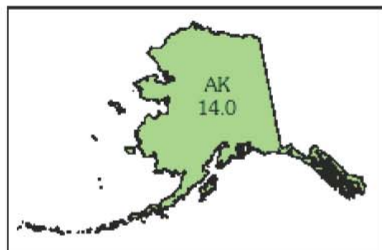
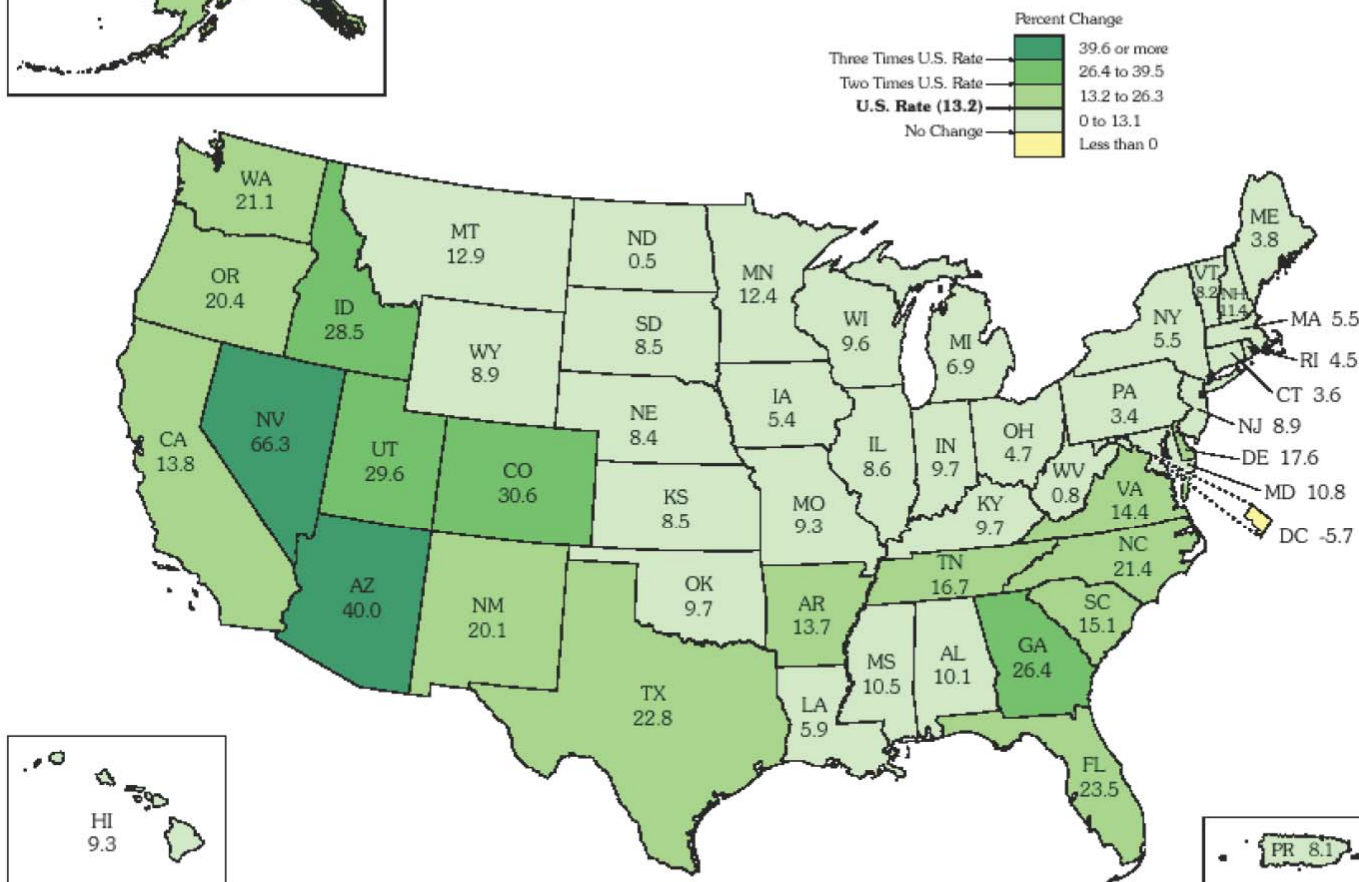


Figure 1. Percent Change in Resident Population for the 50 States, the District of Columbia, and Puerto Rico: 1990 to 2000

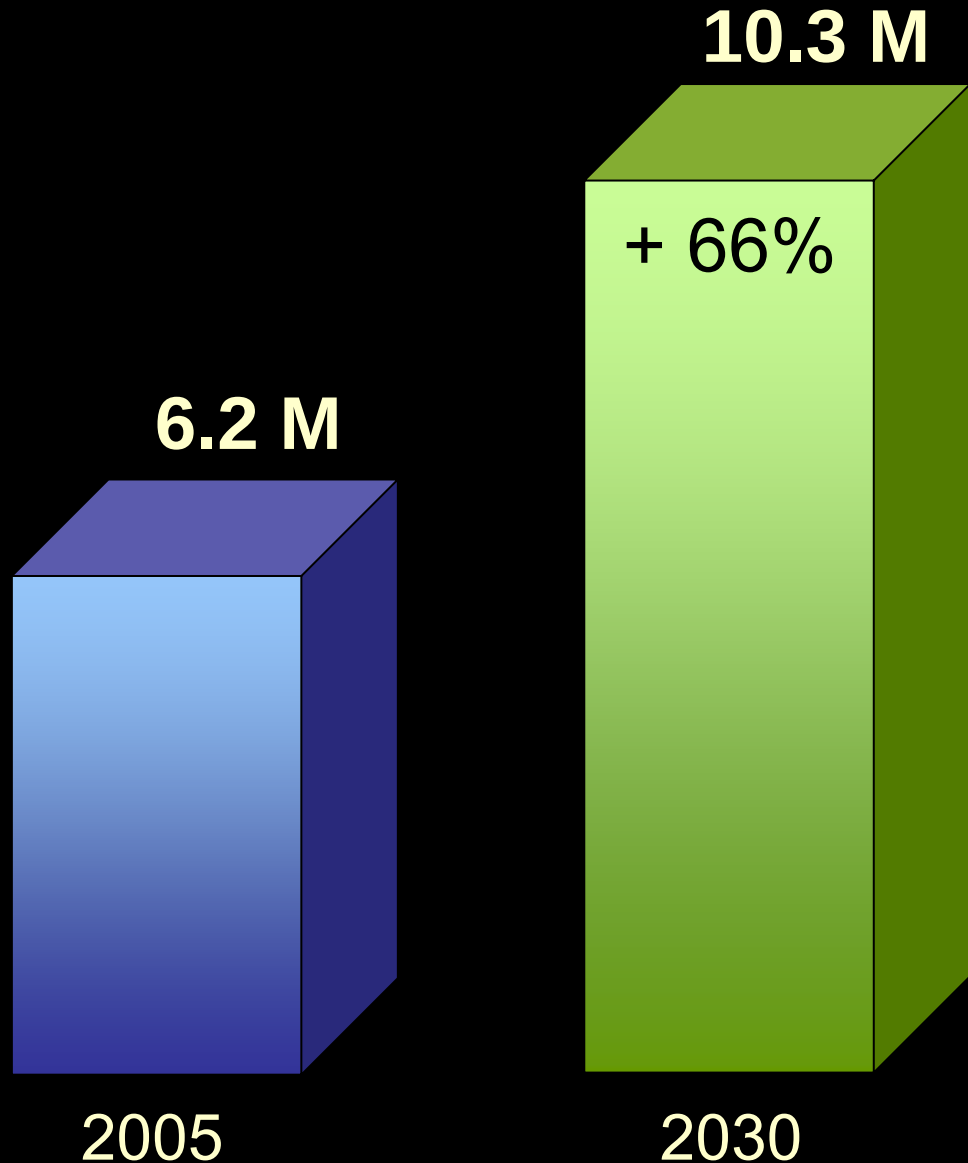


Prepared by Geography Division

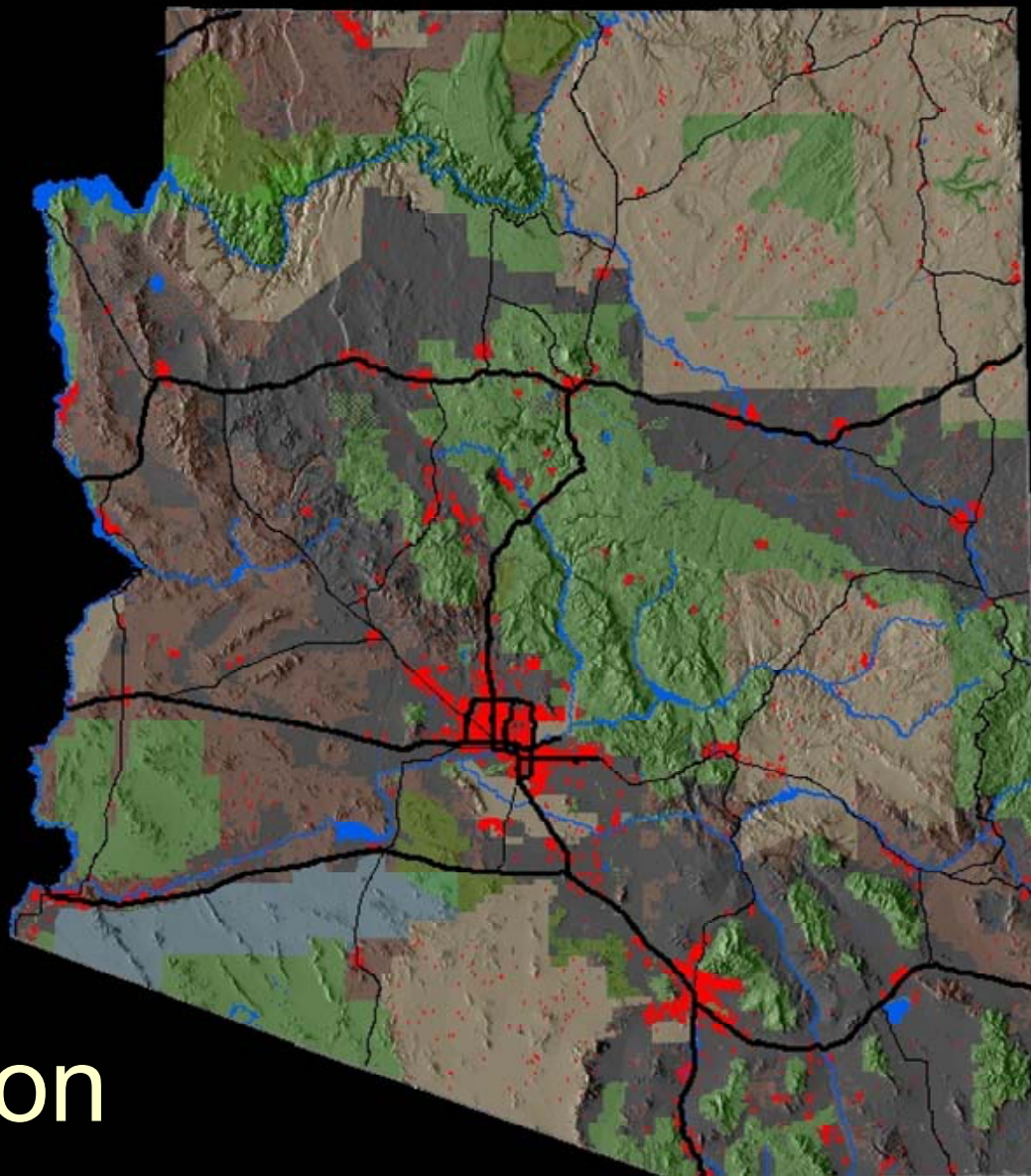
USCENSUSBUREAU
Helping You Make Informed Decisions

They Are Coming

Arizona Population

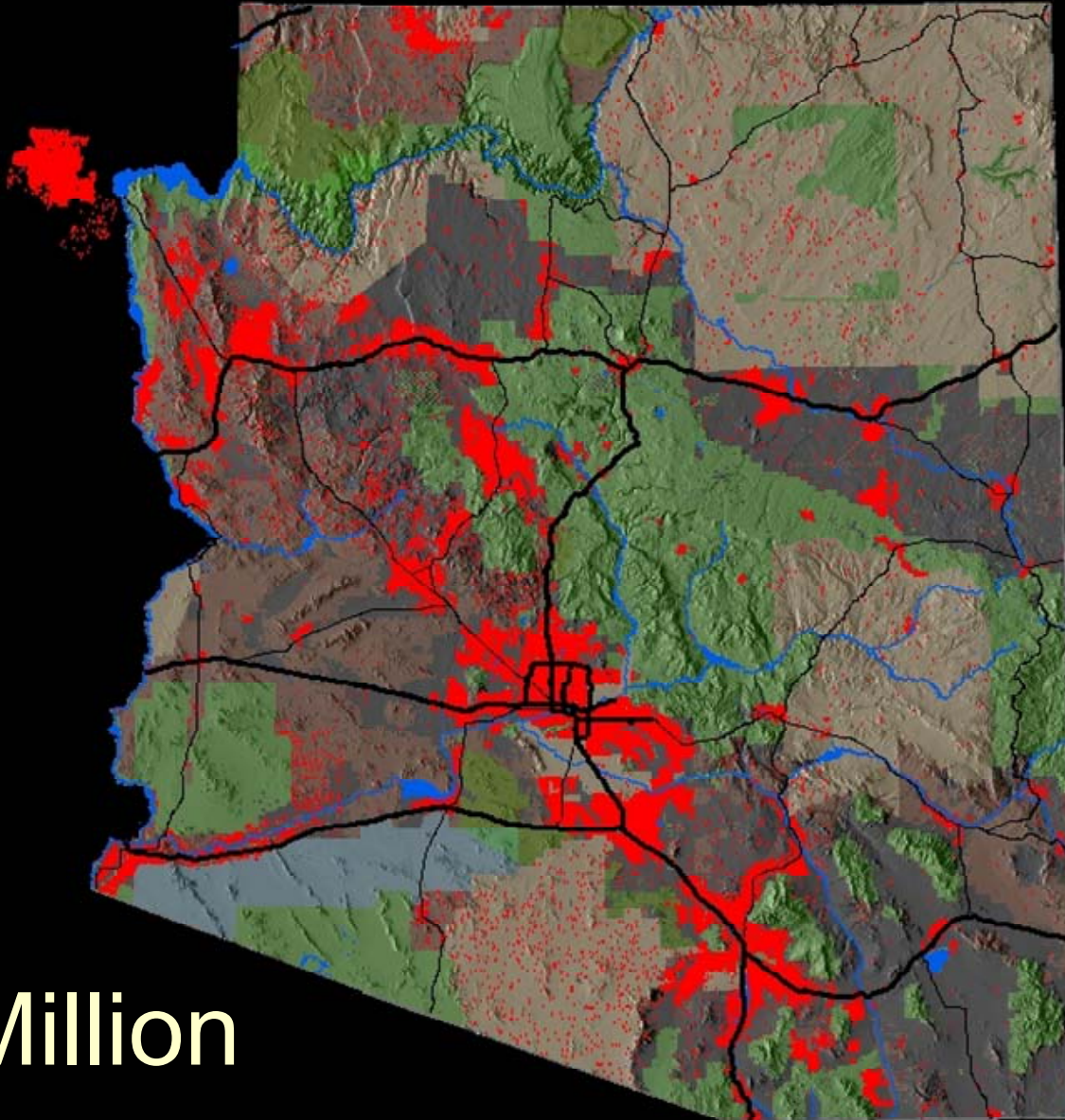


2000

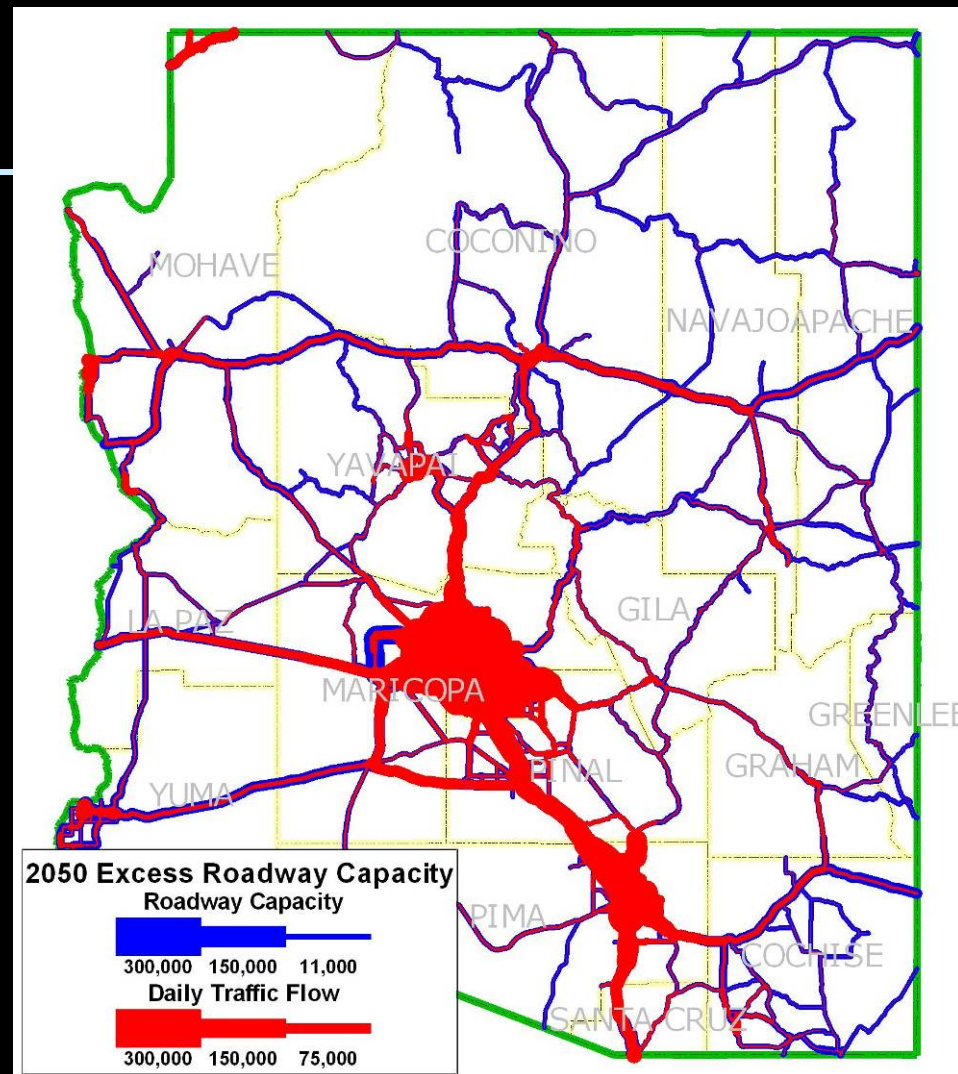
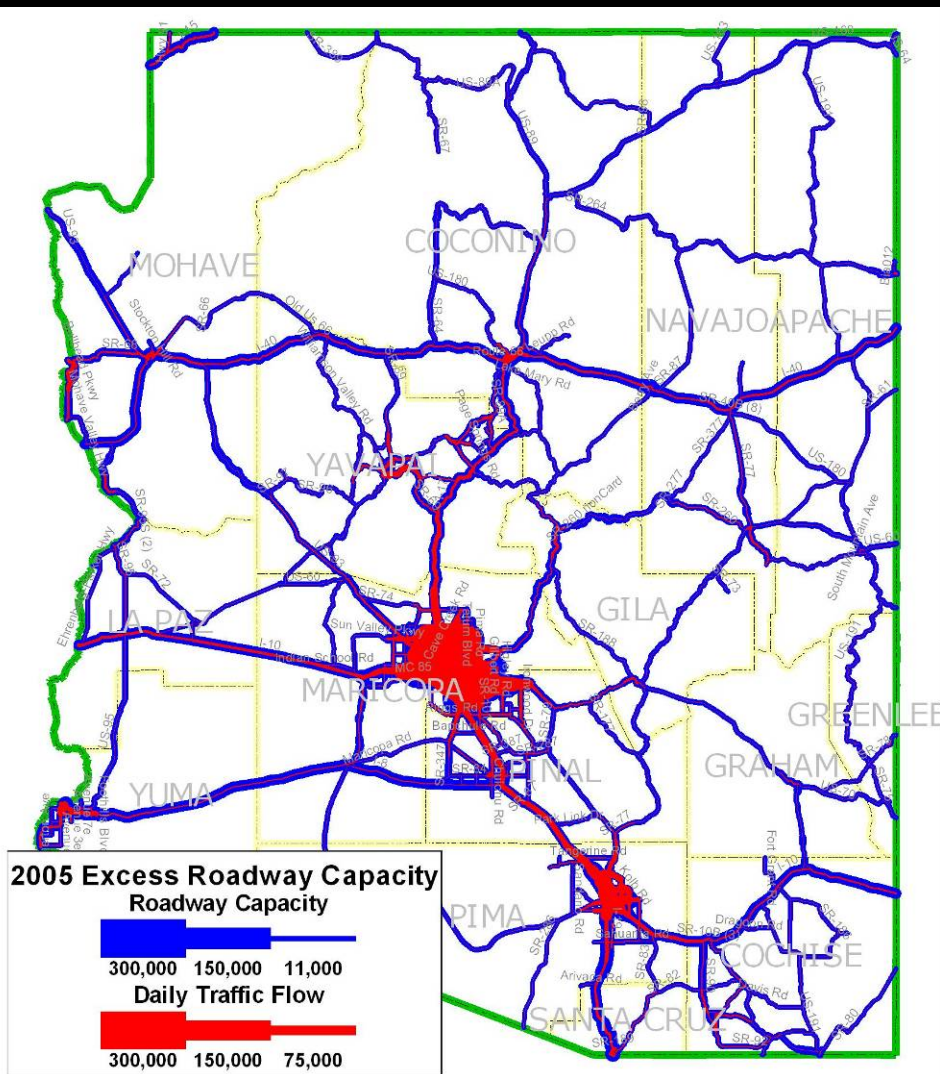


5.1 Million
People

2050

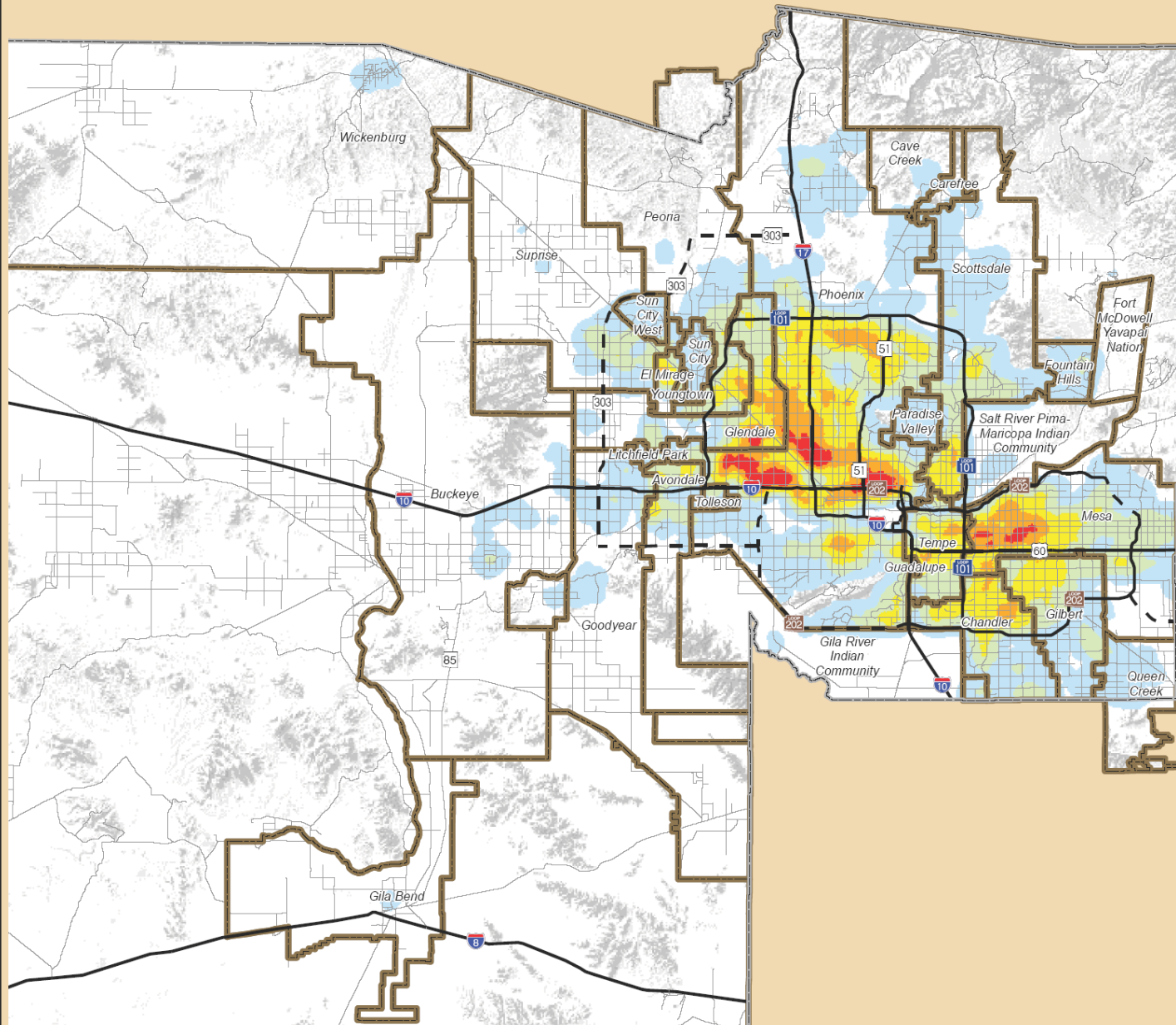


14.1 Million
People



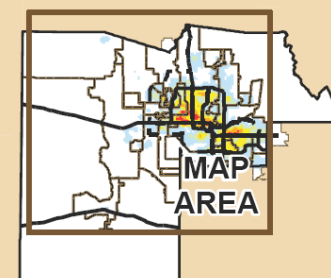
POPULATION CONCENTRATION 2005

Maricopa County, Arizona



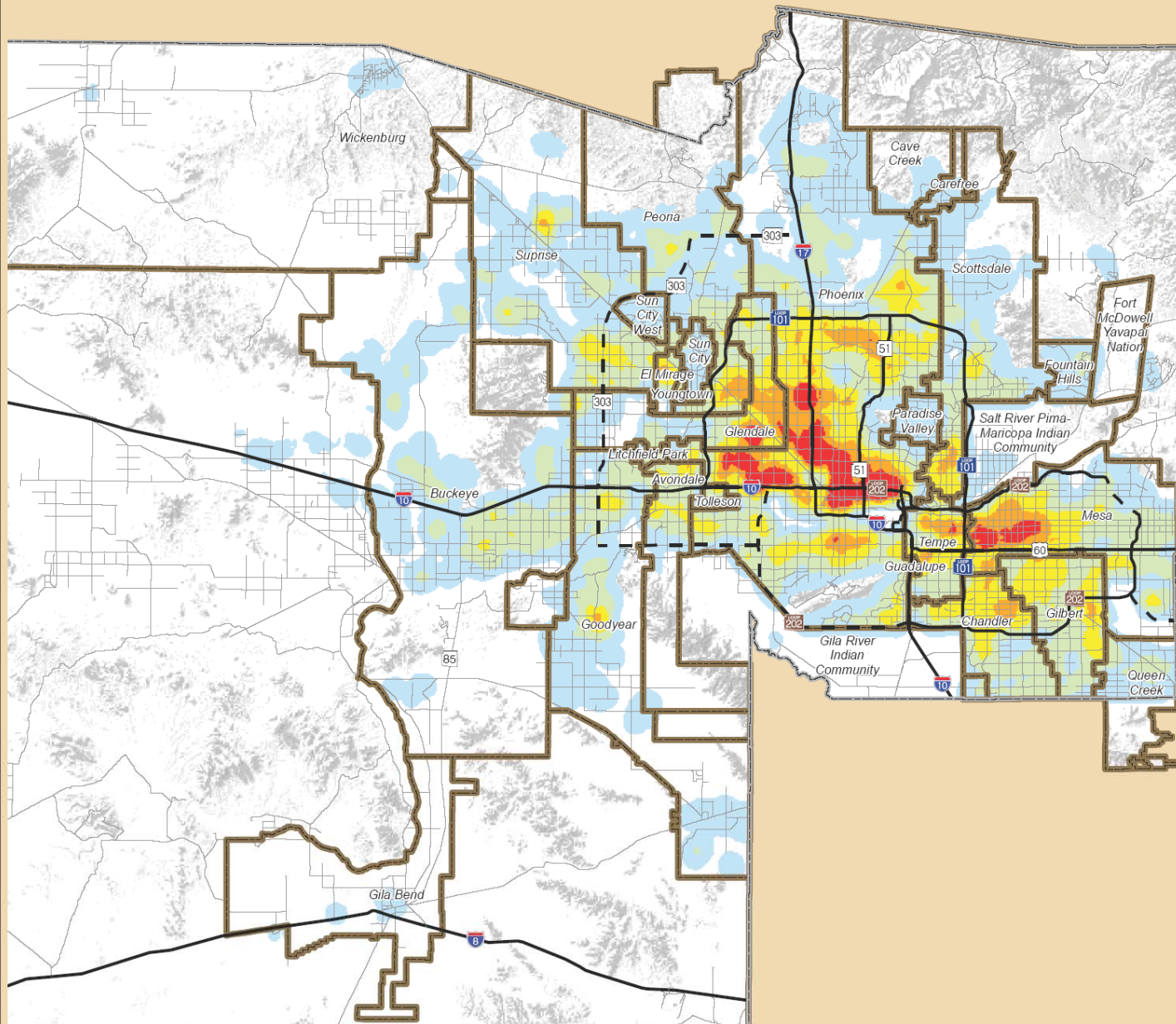
Persons Per Square Mile
(Maricopa County Average = 399)

- 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



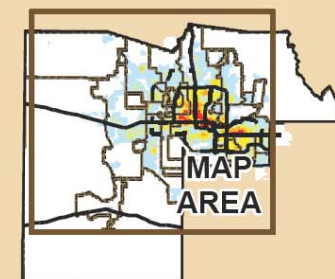
POPULATION CONCENTRATION 2030

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



Bottom Line: Deciding Where the People Should Live

- Western states must absorb millions of new people within the next two decades
- Will we plan for them? Where?



Existing Cities

- TODs
- Other infill, refill



New Cities

- TODs
- Other



Sprawl

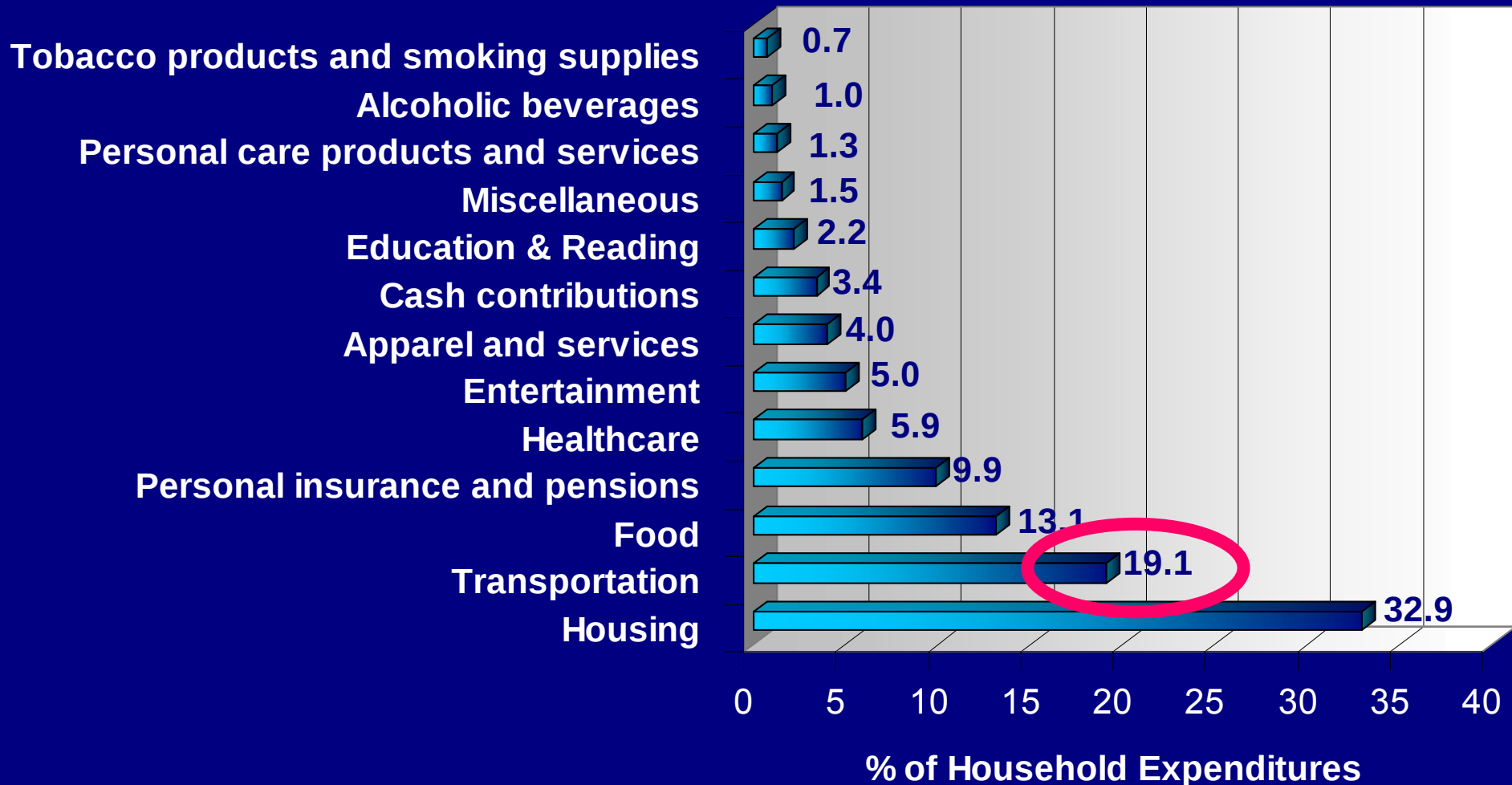


Challenge 3. Providing for Prosperity

Regional Approaches



Household Expenditures



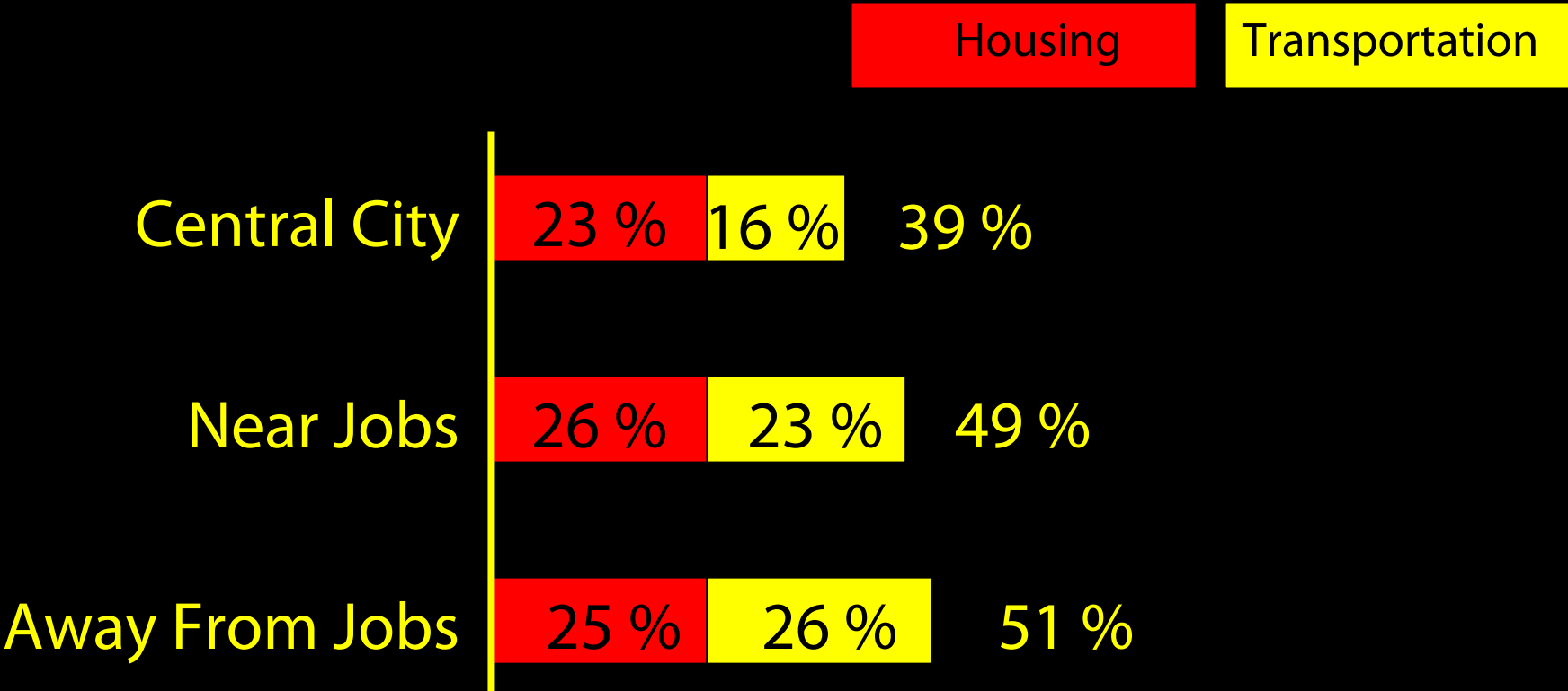
TYPICAL HOUSEHOLD BUDGET IN 28 METROPOLITAN AREAS

(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%

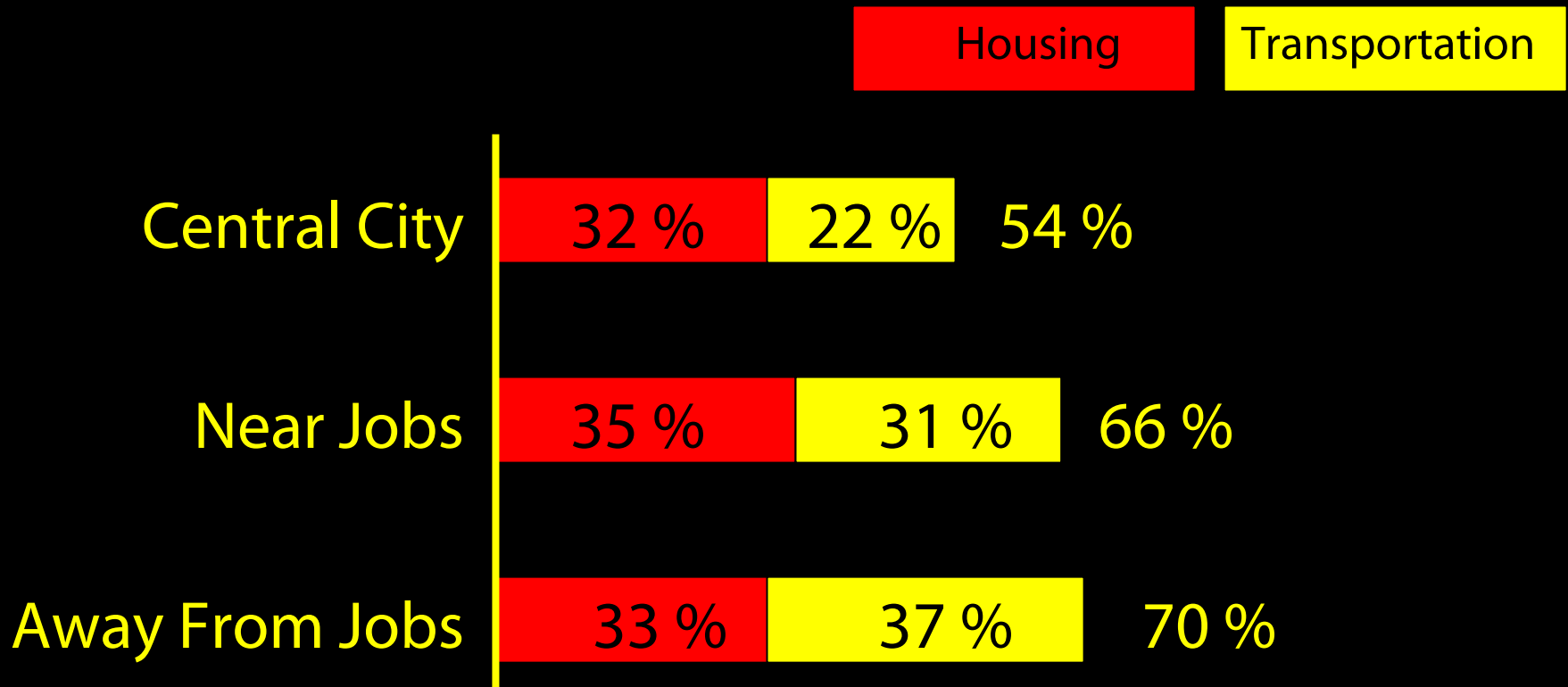
Share of Family Income Spent On Housing & Transportation

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



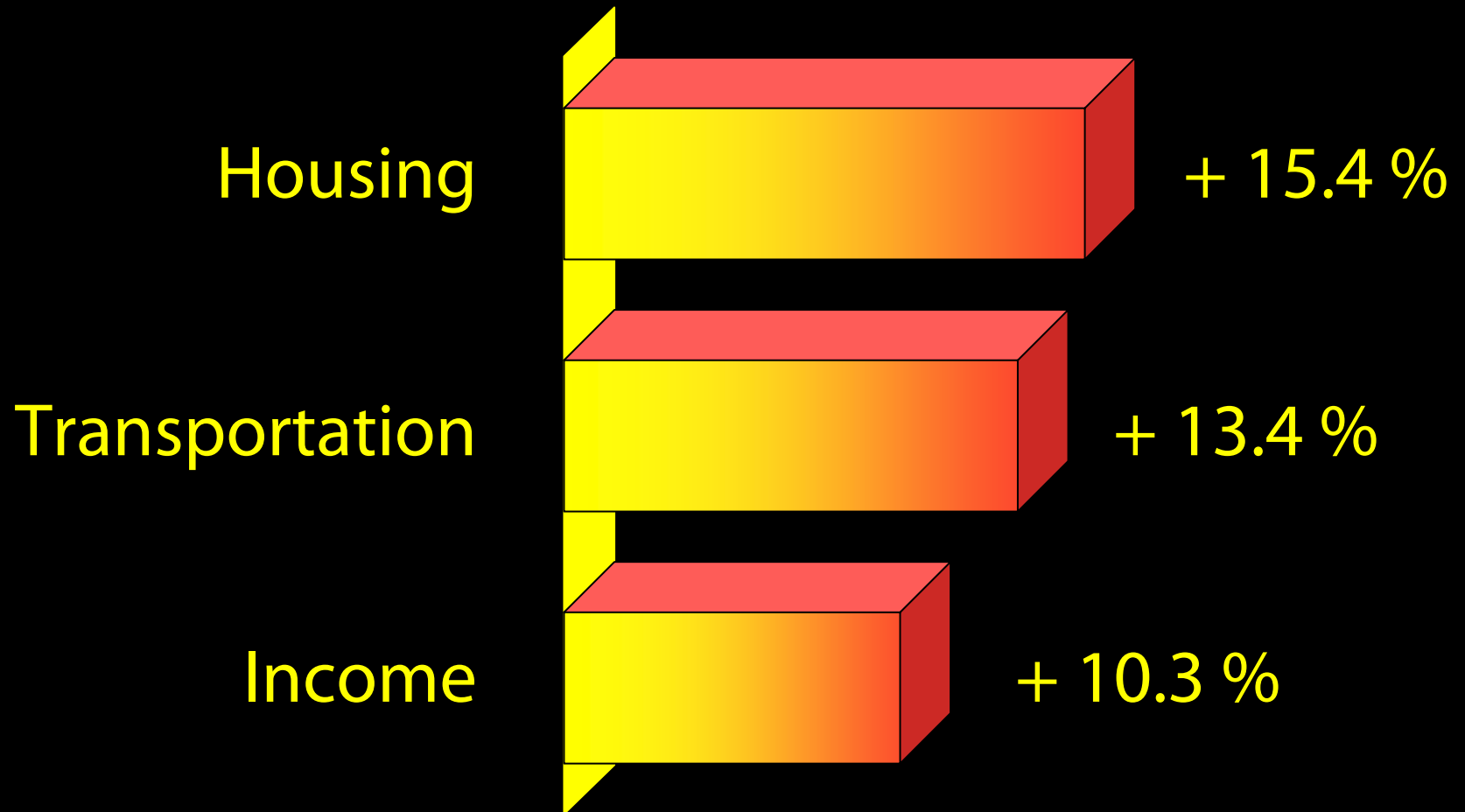
Share of Family Income Spent On Housing & Transportation

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



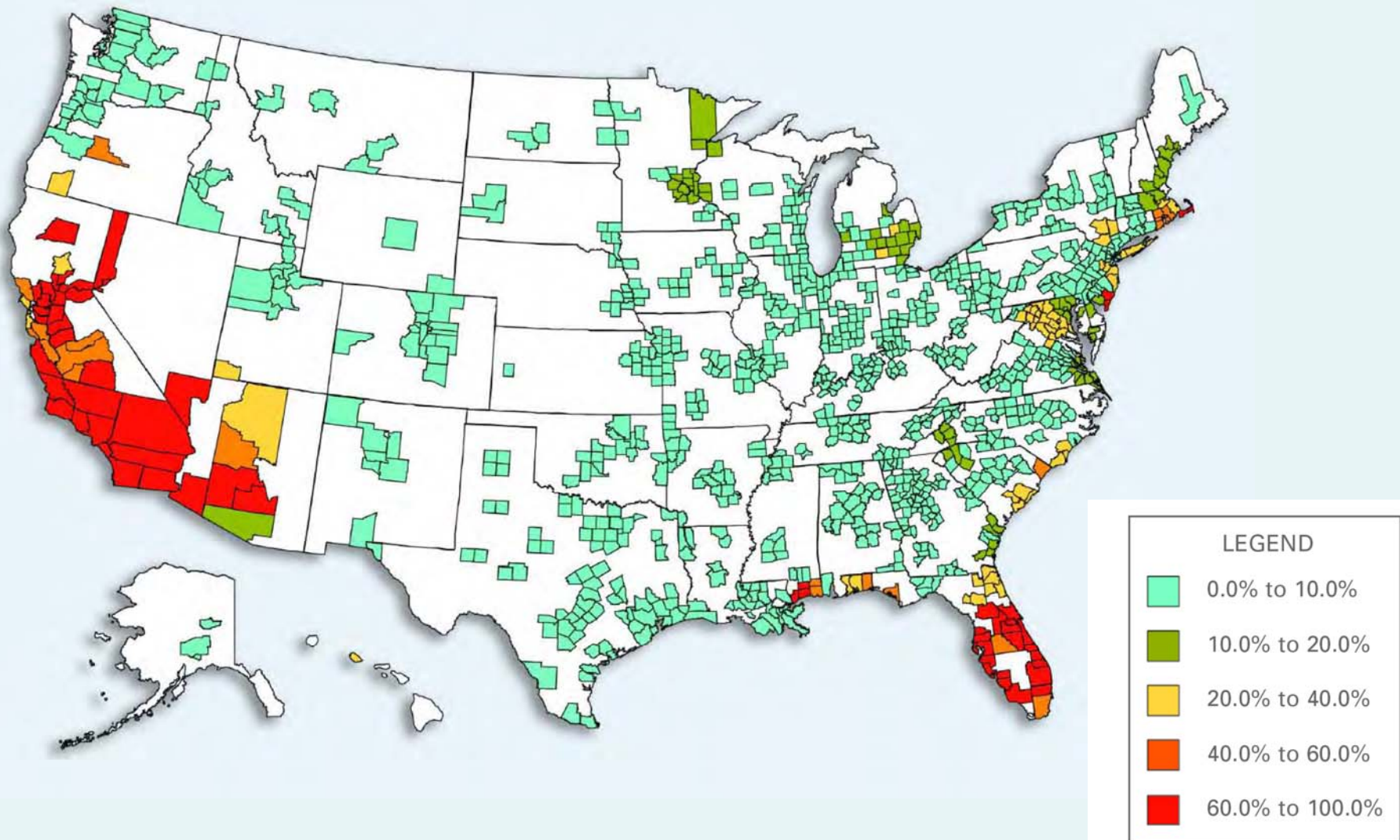
Family Costs Rising Faster Than Incomes

(2000 – 2005)



Source: A Heavy Load, Center for Neighborhood Technology

Geographic Distribution of **HOUSE PRICE RISK**

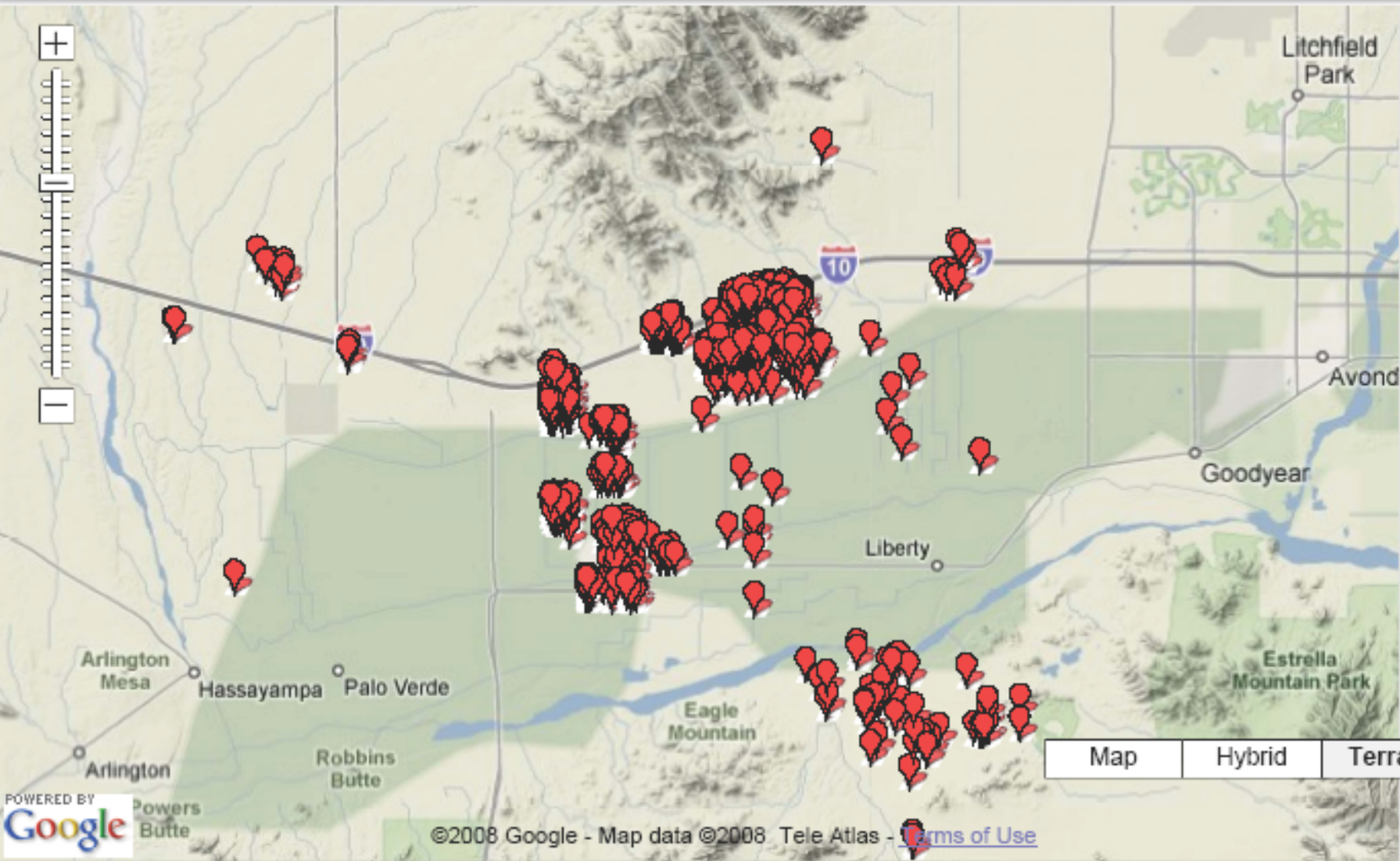


FORECLOSURES BY ZIP CODE

Show controls

FAQ

Credits



Bottom Line:

Providing for Prosperity

- Mobility is costing households & businesses too much
- If we are to have a large middle class, we must re-tool our jobs-housing relationships & our supporting transportation systems
- The market for exurban sprawl has shrunk... and may be gone entirely
- Cities are about to become very popular places to live

Opportunities

Regional Approaches



Opportunities

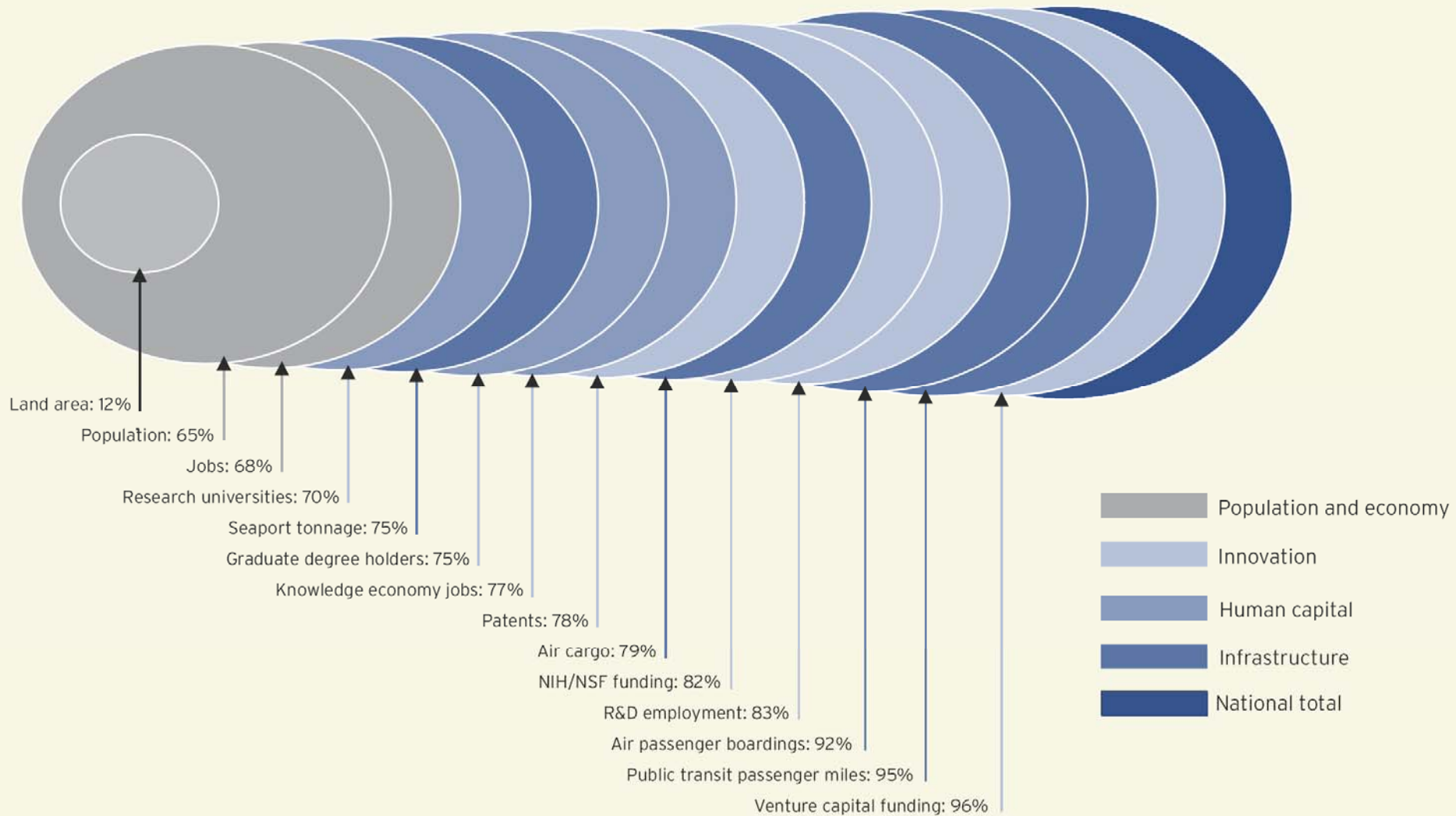
1. Cities that work
2. Intercity rail corridors
3. Regional scenario planning
4. Reinventing transportation finance

Opportunity 1. Cities that Work

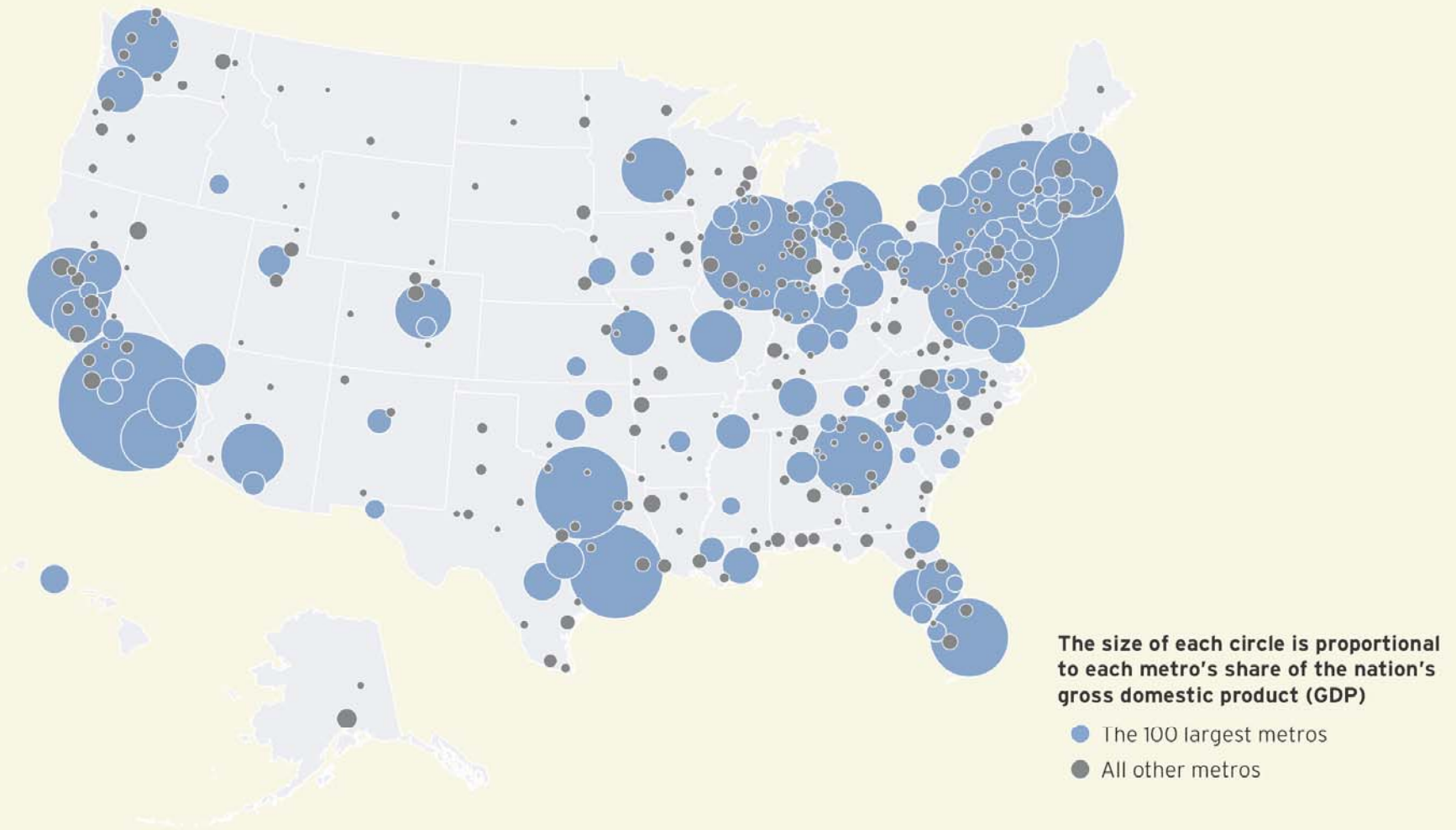
Regional Approaches



Major metros aggregate fundamental drivers of national prosperity



The 100 largest U.S. metros generate 75 percent of the nation's annual GDP



Source: Brookings analysis of Bureau of Economic Analysis data.

Well Designed Density, Mixed Use

It is not this:



Well Designed Density, Mixed Use



Well Designed Density, Mixed Use



Well Designed Density, Mixed Use



Well Designed Density, Mixed Use



Well Designed Density, Mixed Use



Well-Planned Access & Circulation Systems



Charlotte

Charlotte

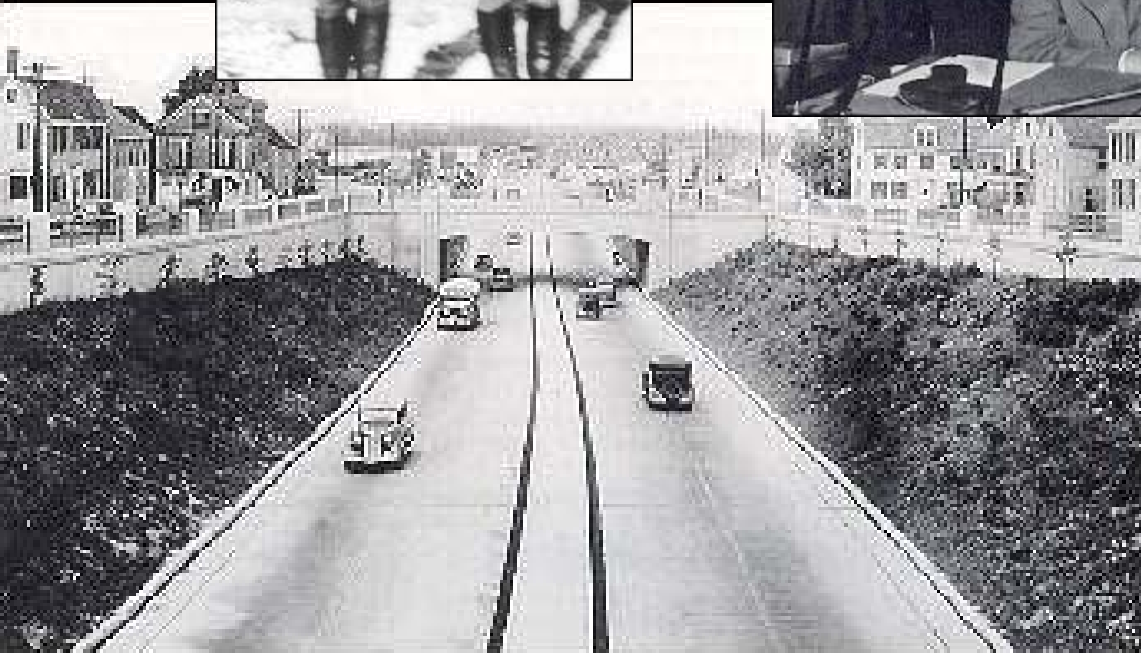


Opportunity 2. Intercity Rail Corridors

Regional Approaches



50s – 70s: Interstate Highway System

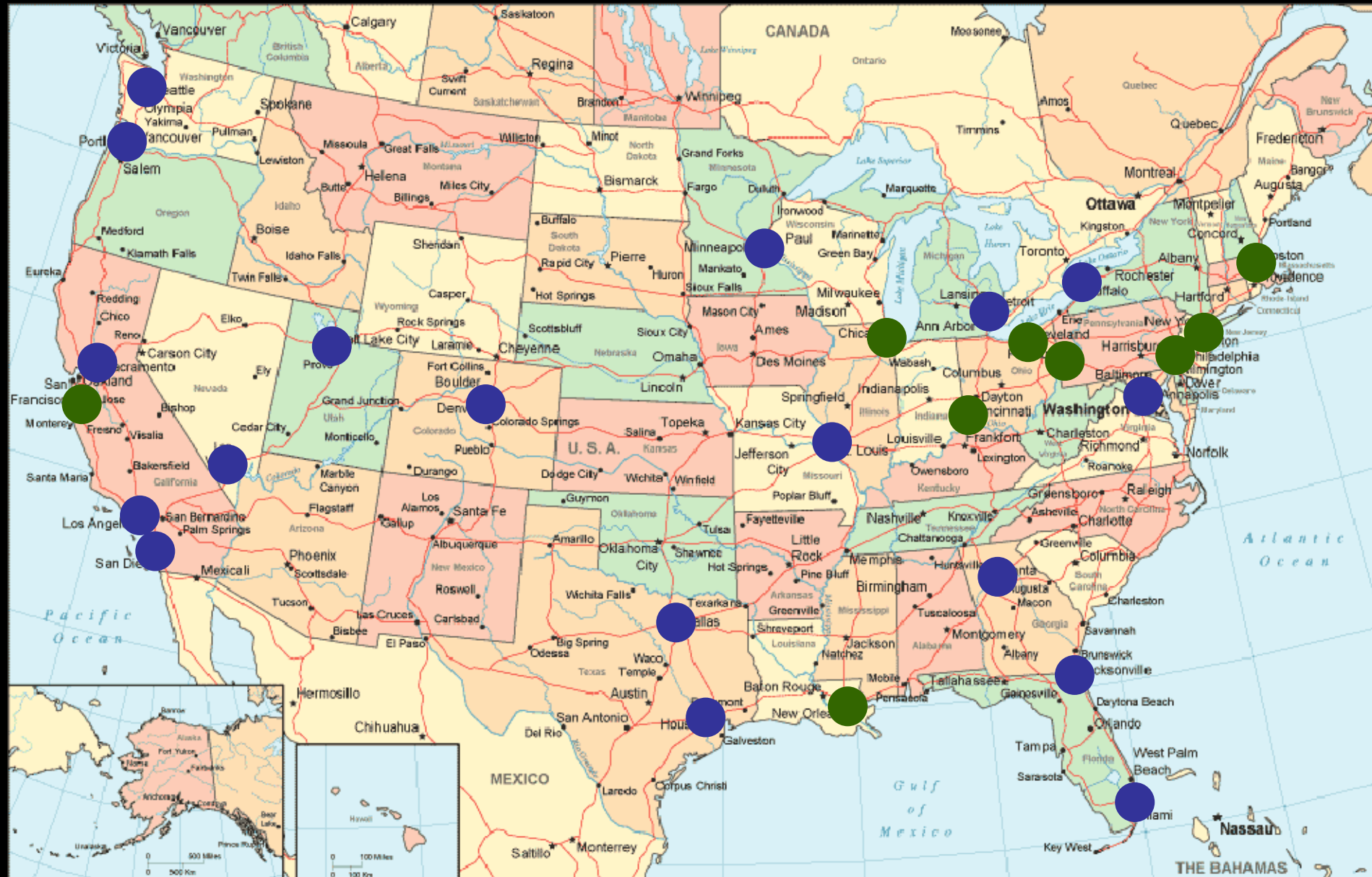




70s – Today: Urban Rail Transit



Rail Cities in the United States (as of 2006)



1



Interstate 40 corridor and supporting routes truck freight flow (tons per year)



Multi-axle trucks as a % of total traffic:

- $\geq 20\%$ in many arterial corridors
- $\geq 40\%$ on most of the rural interstate system





Officially Designated HSR Routes





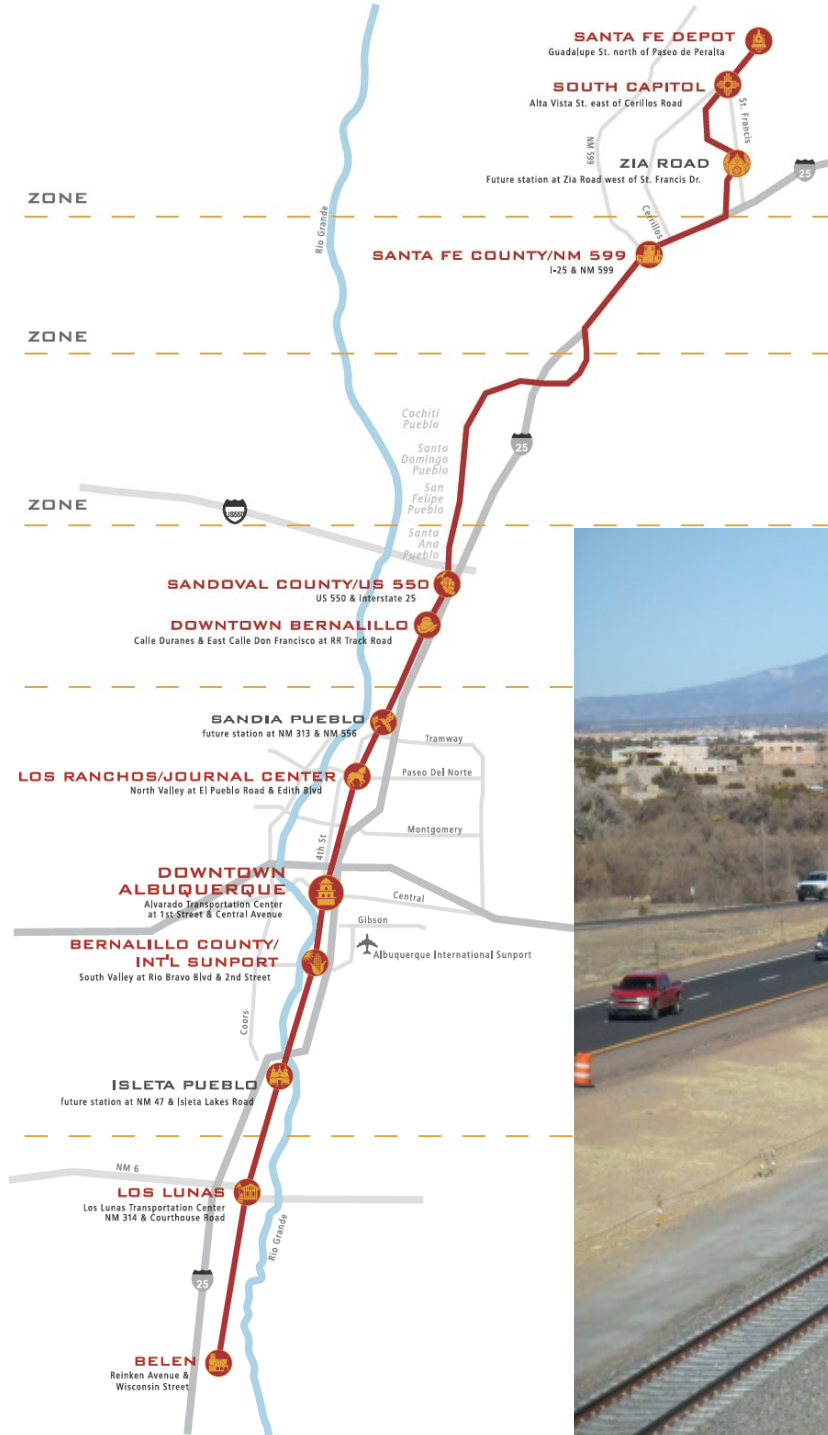
Criteria for High Speed Rail

- Portal-to-portal distance
 - > 100 miles to compete with auto
 - < 600 miles to compete with air
- Major airports at or near capacity
- Sufficient population in centers
- Potential to operate @ 90 – 150 mph

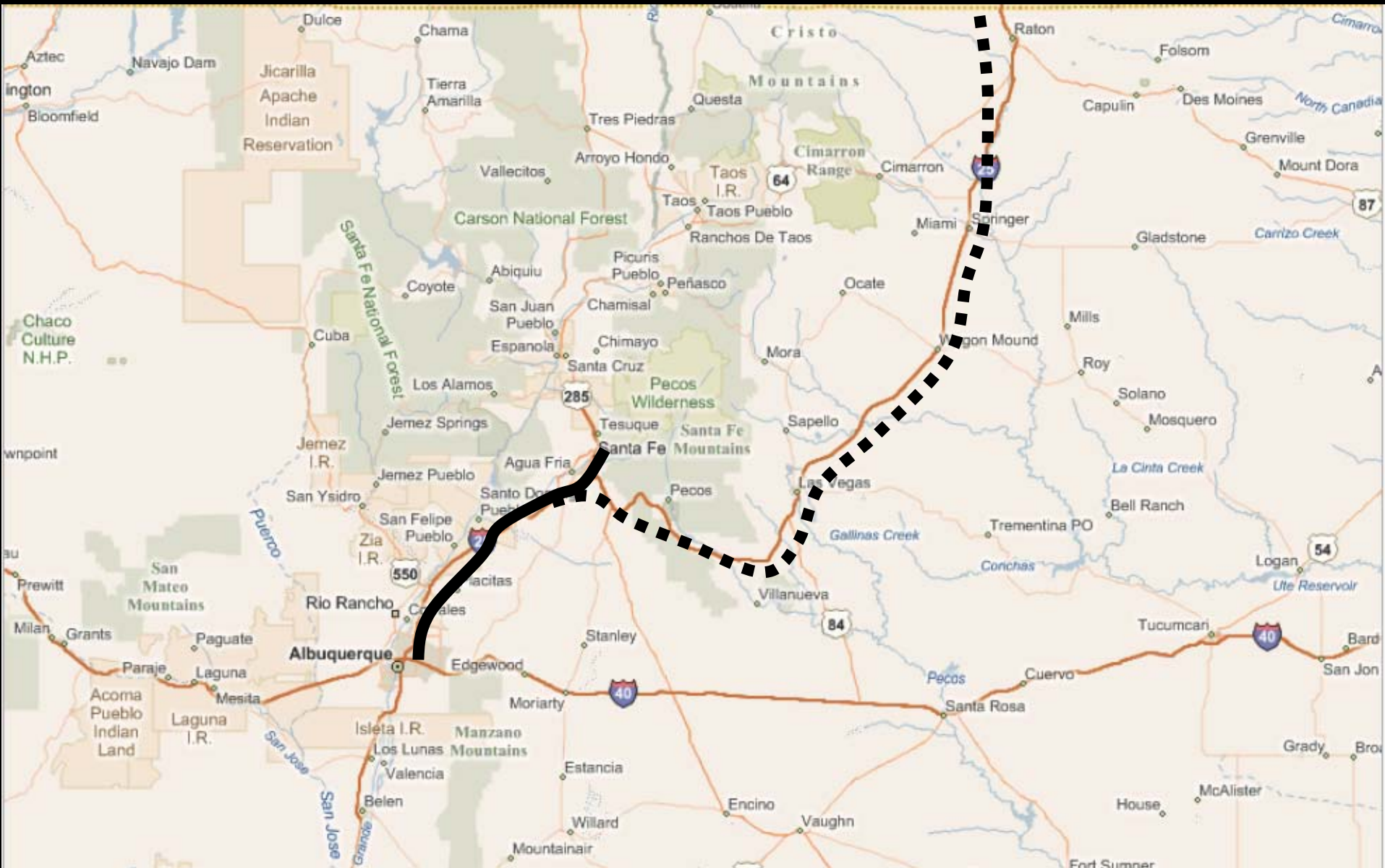
Intercity Rail Corridors

- Connect the economies of city pairs
- Operate @ 65 – 90 mph
- Serve double duty as commuter rail corridors

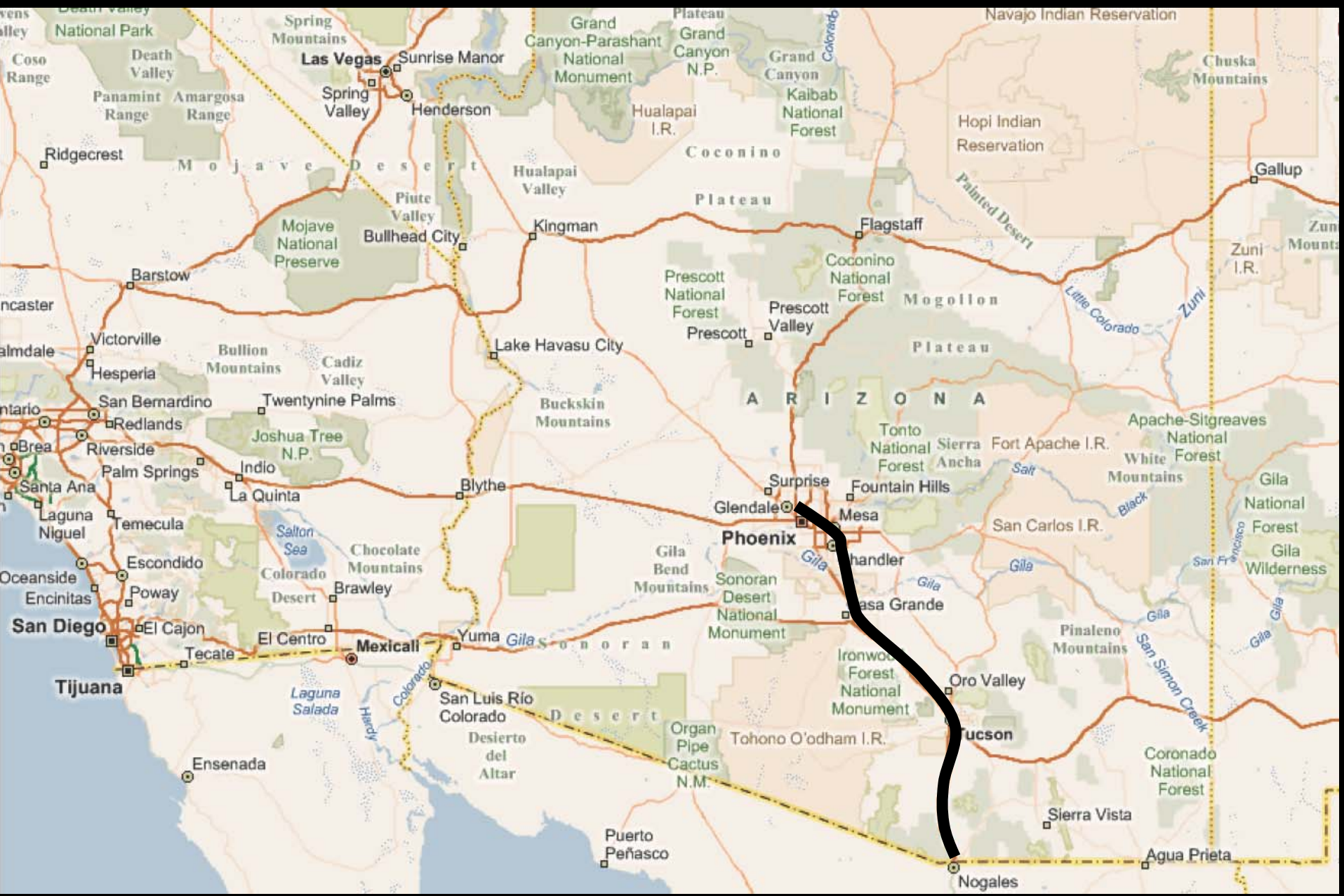
New Mexico RailRunner



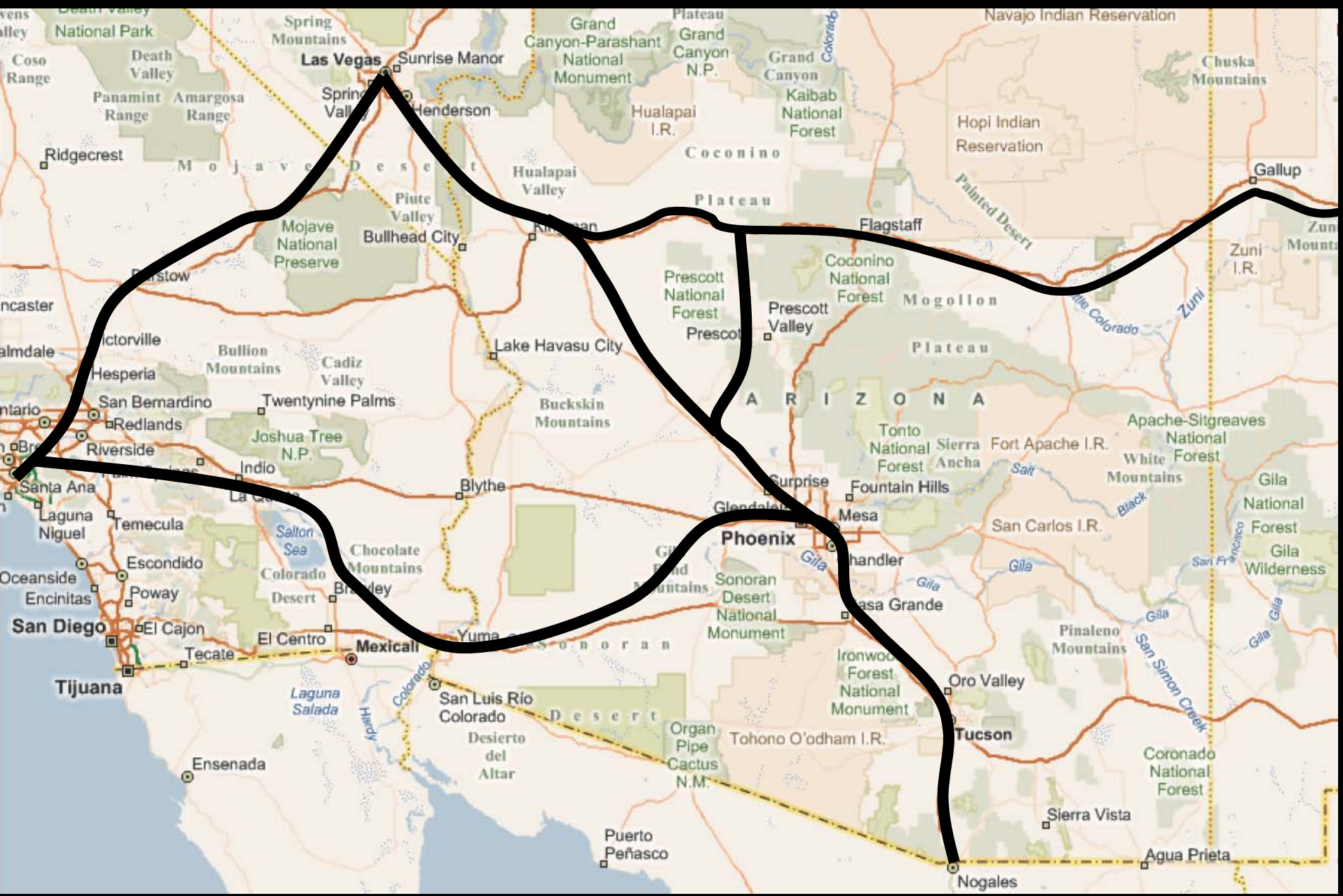
New Mexico



Arizona

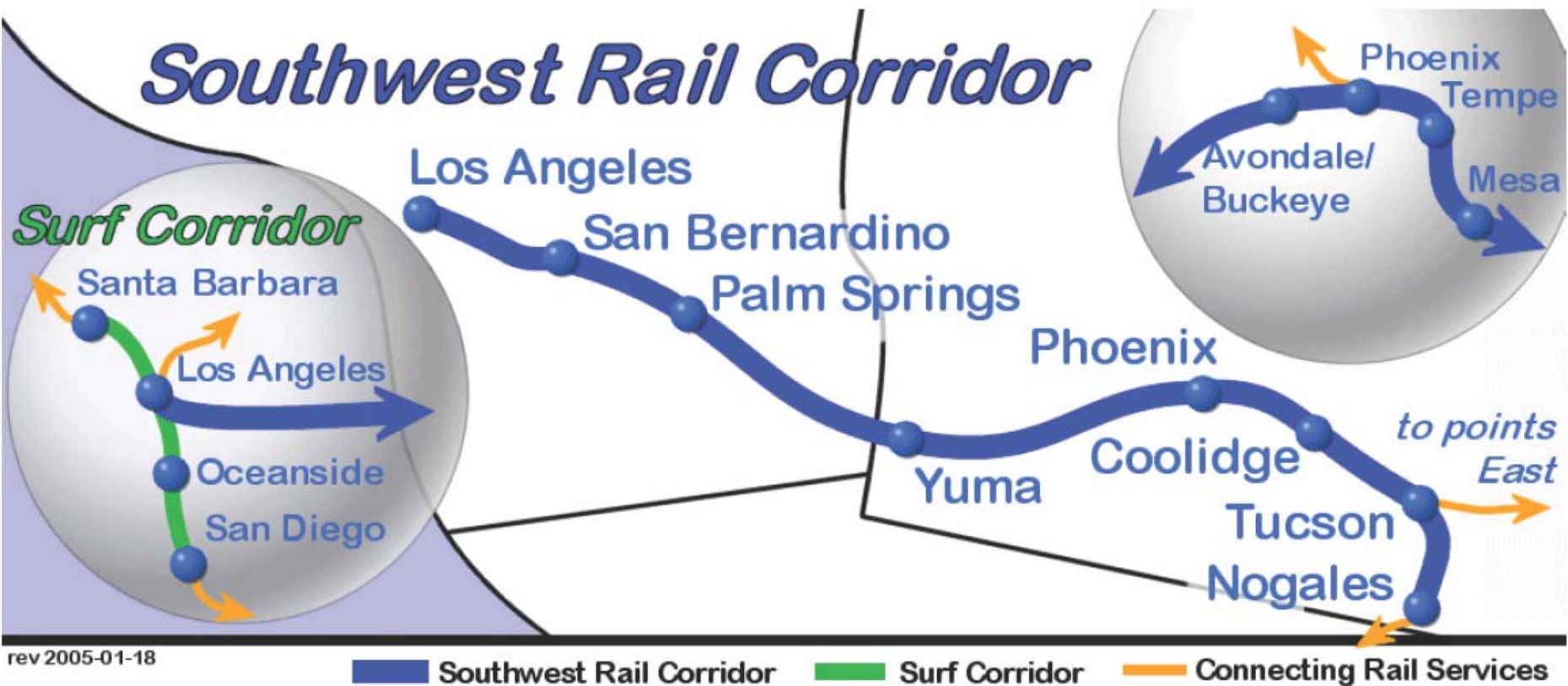


Arizona, California, Nevada, New Mexico

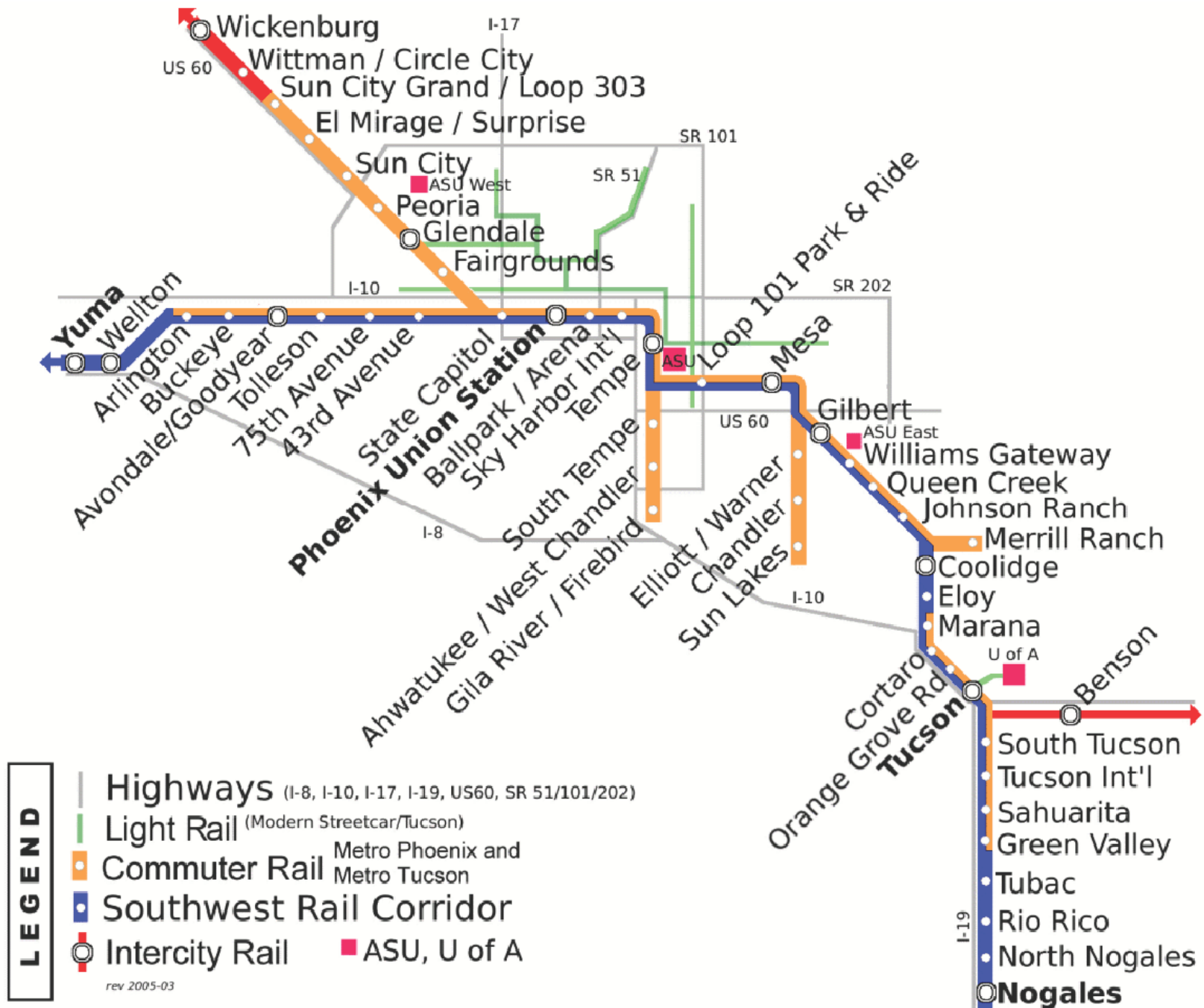


Southwest Rail Corridor

Southwest Rail Corridor

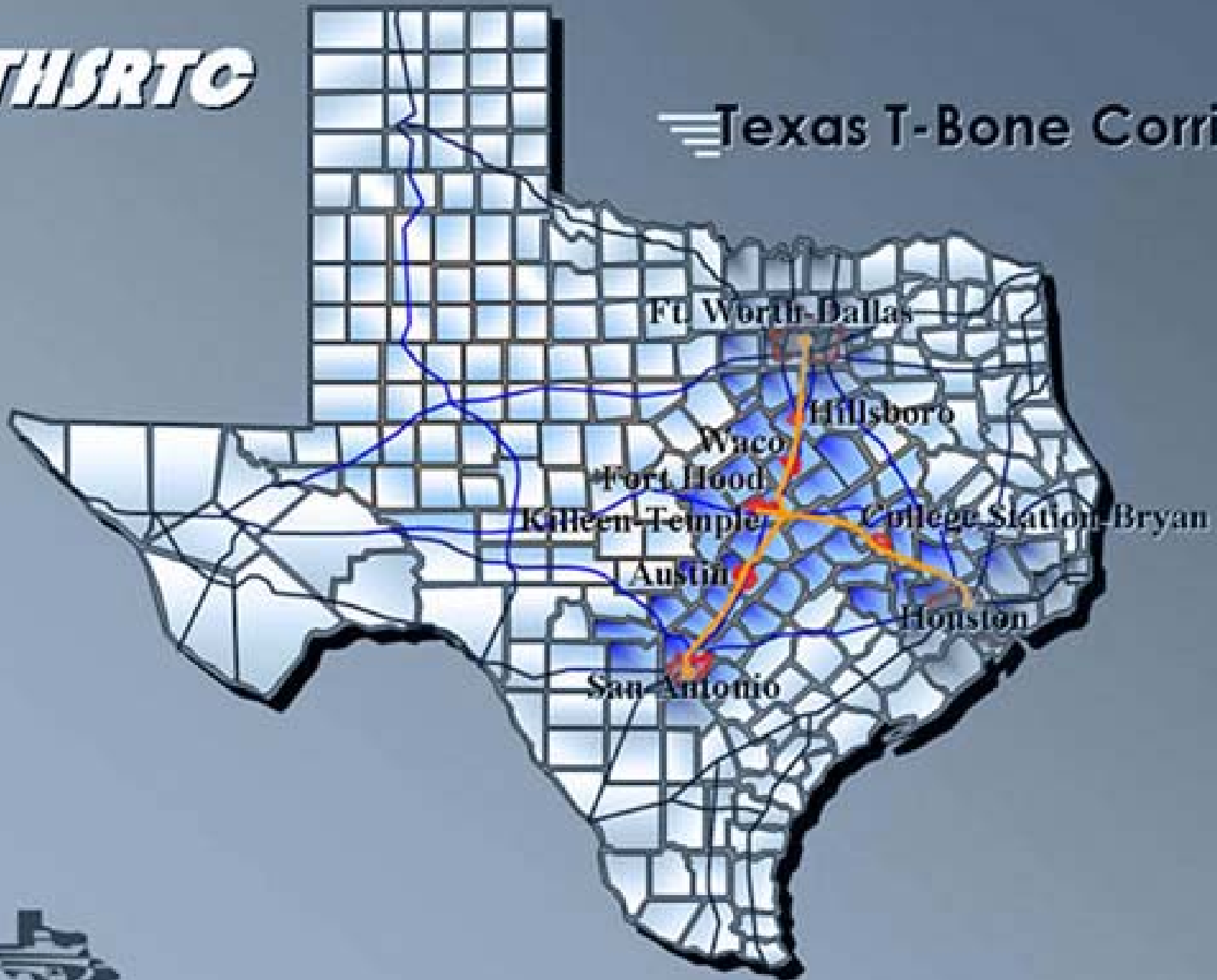


June 2005



THSRTC

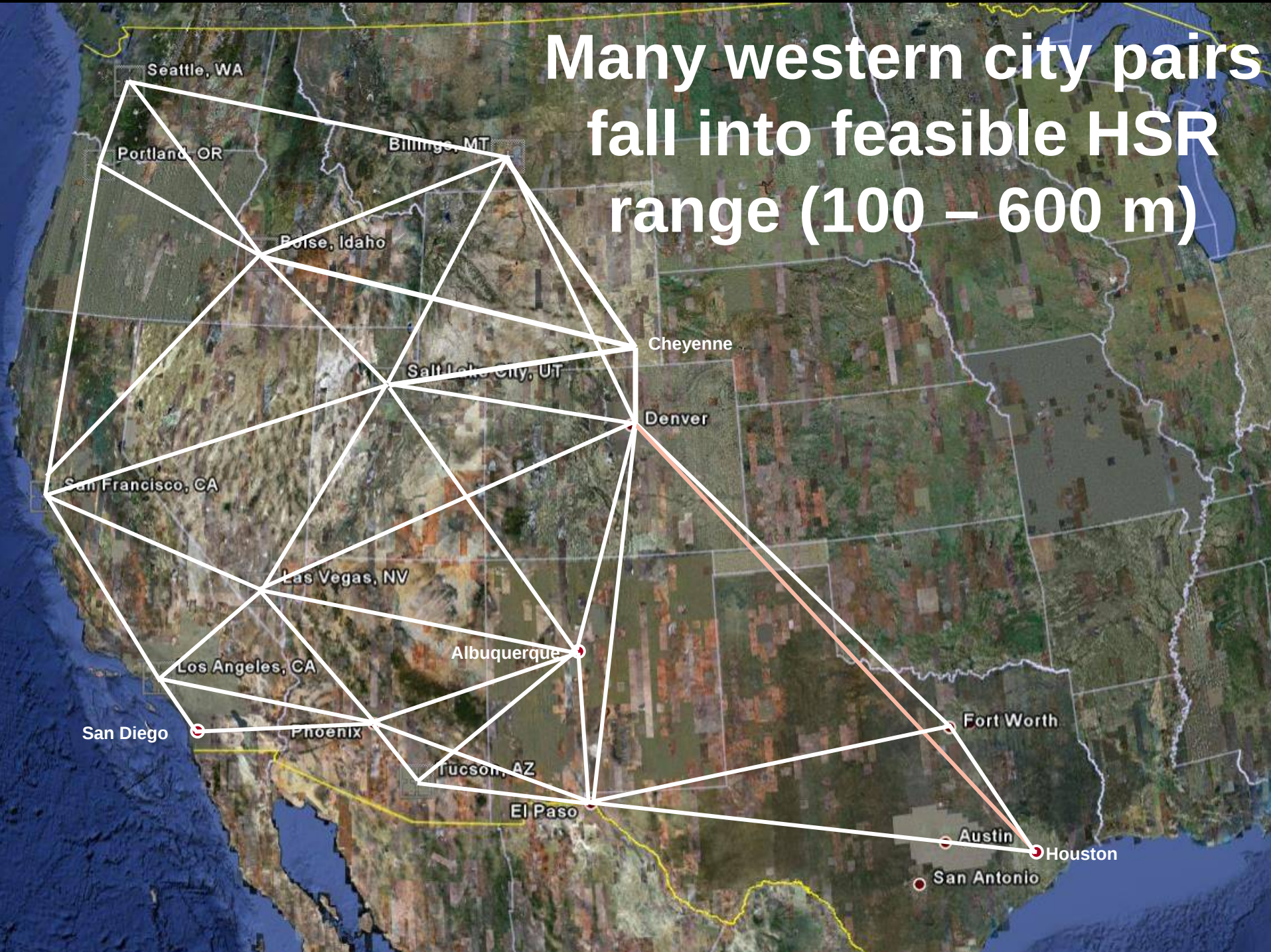
Texas T-Bone Corridor



Colorado Rail Corridor Study



Many western city pairs
fall into feasible HSR
range (100 – 600 m)





Opportunity 3. Regional Scenario Planning

Regional Approaches



Current Transportation Planning Structure

Federal Government – DOT Agencies

(FHWA, FTA, FRA, FAA, NHTSA, etc.)

State DOTs

MPOs

(Metropolitan Planning Organizations)

Transit
Agencies

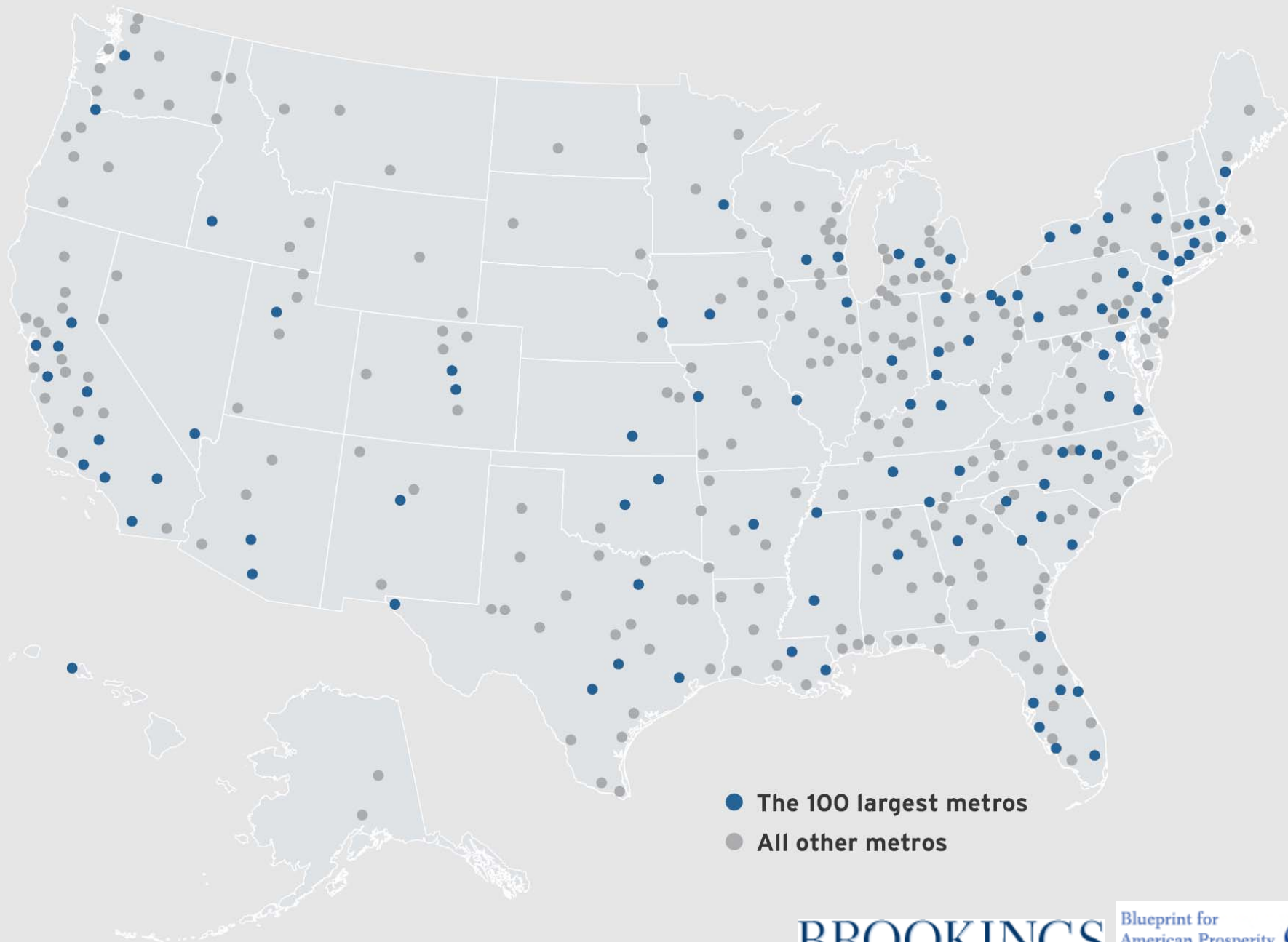
Districts

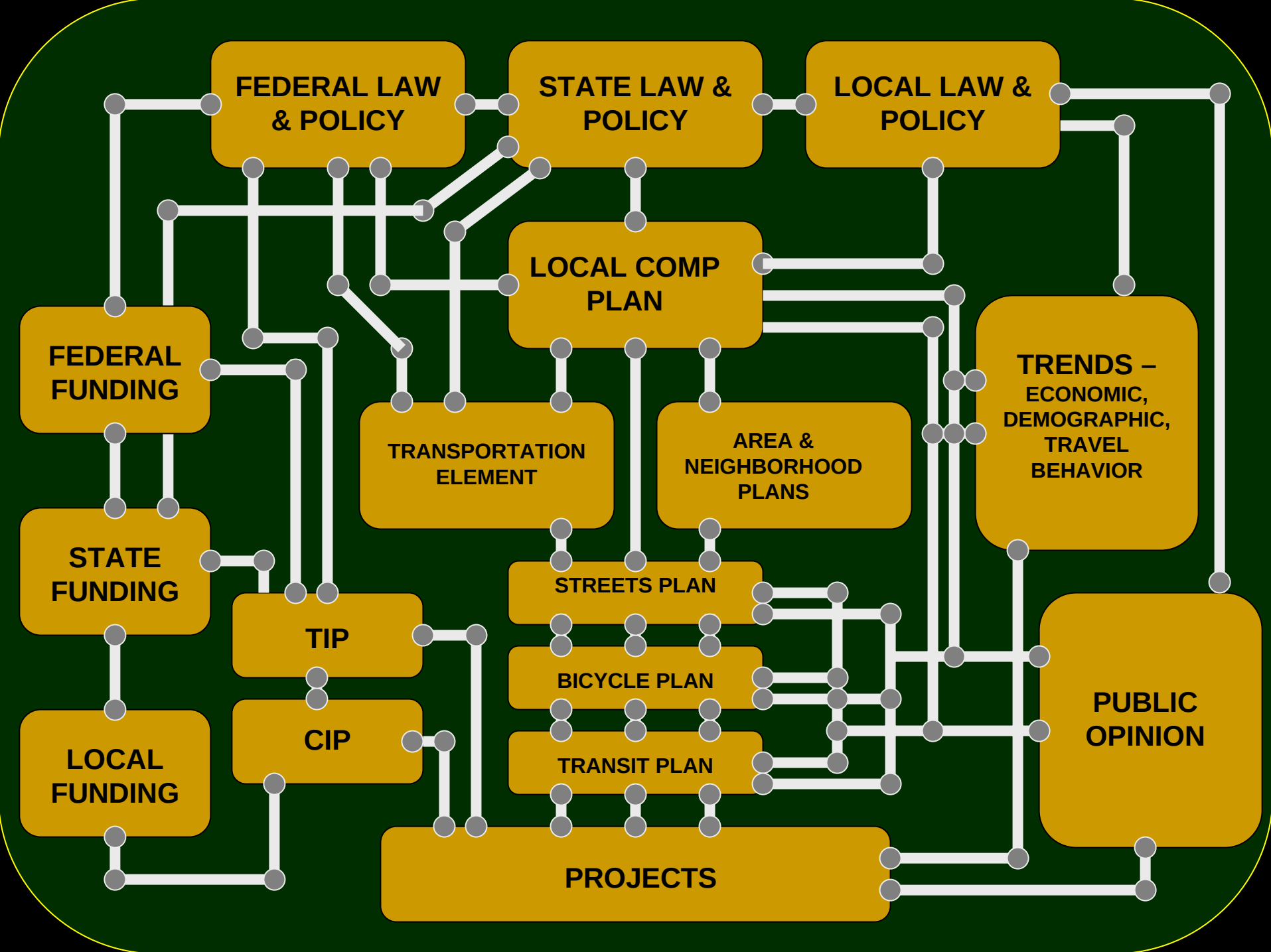
Regions

Cities

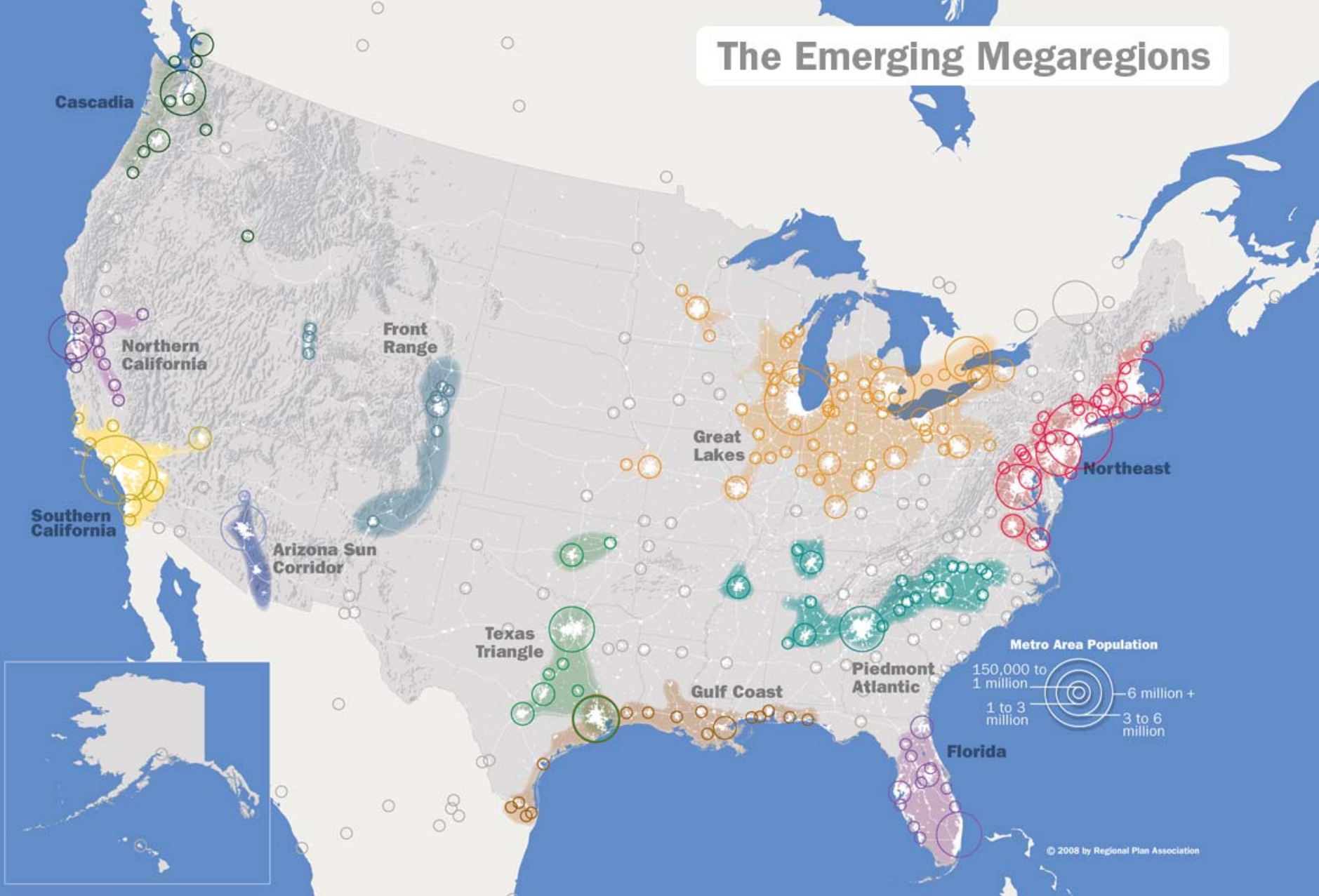
Counties

The 100 largest metros are located in every region of the country

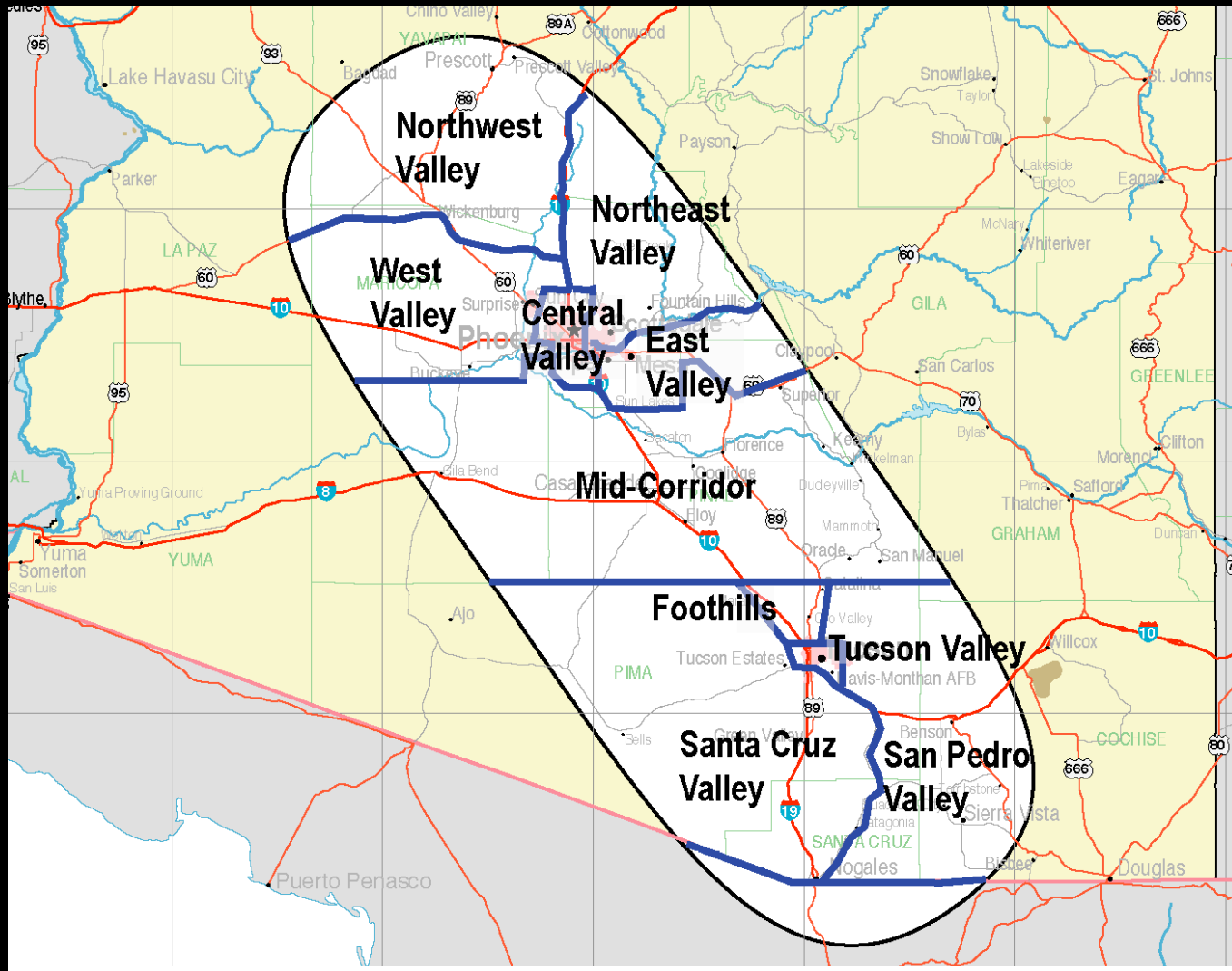




The Emerging Megaregions



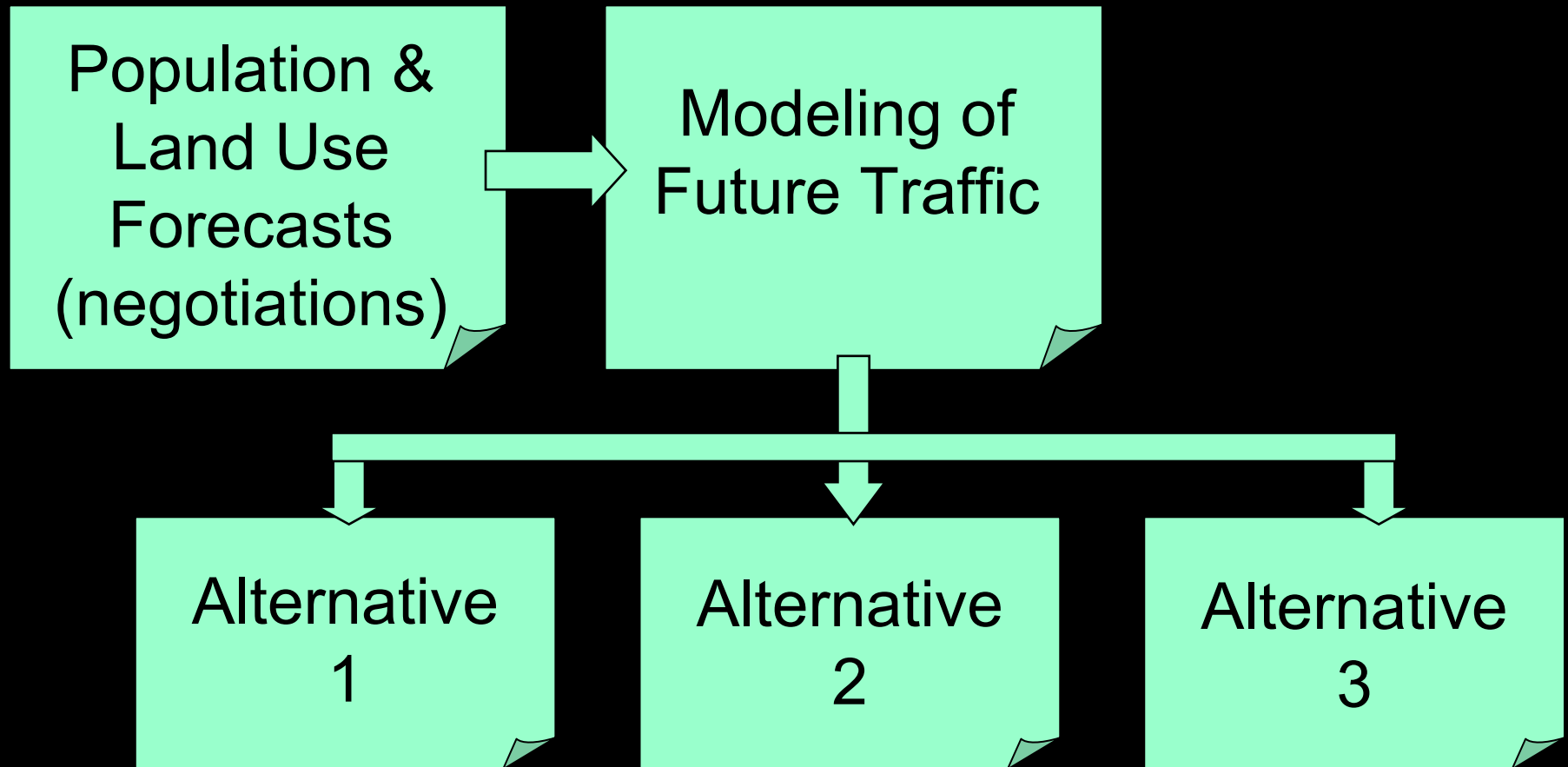
Arizona Sun Corridor



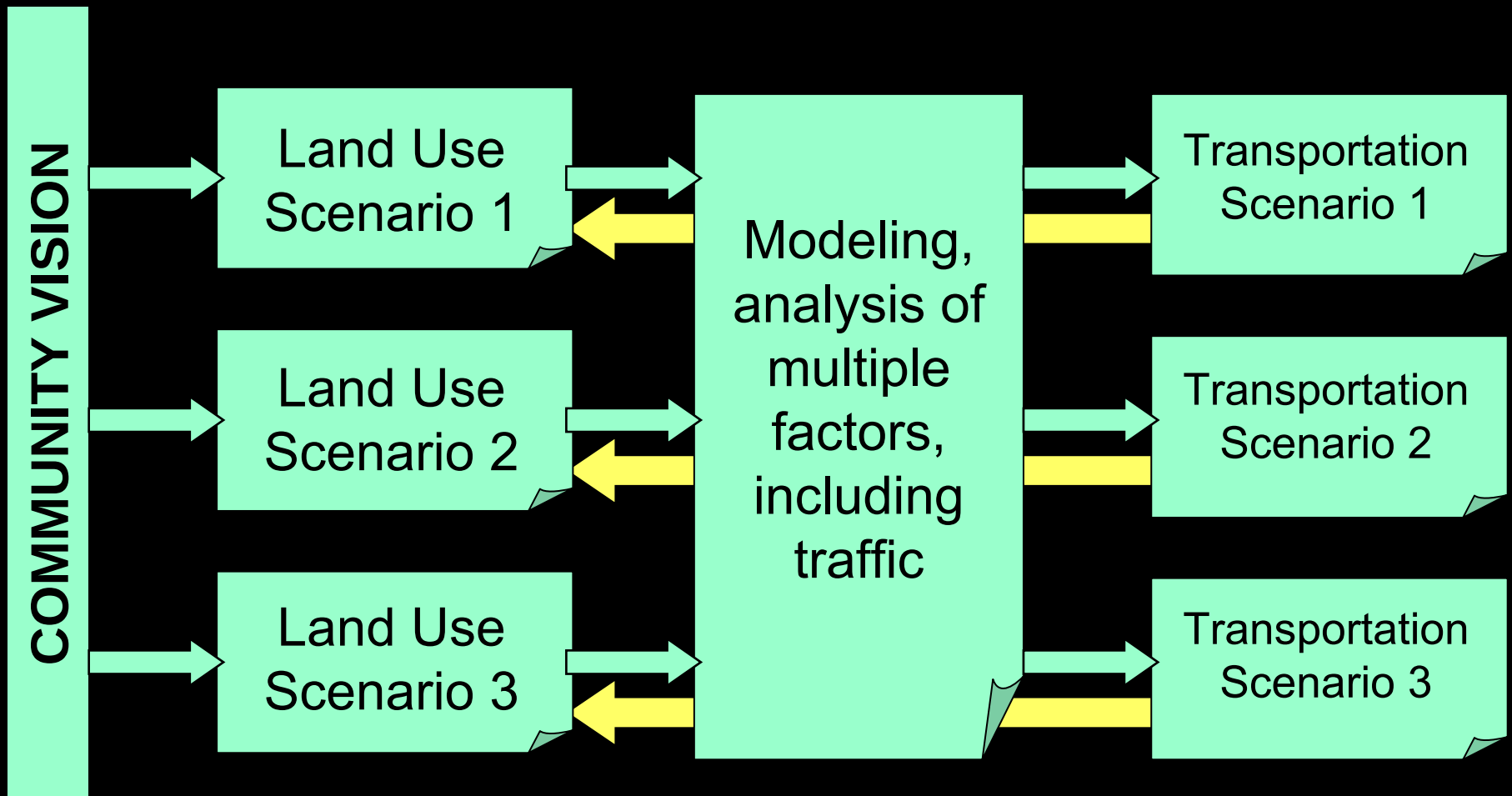
A New Era of “Regional” Planning

- Imperative for city pairs to collaborate on transportation & land use planning
- Need for cities in adjacent states (and state DOTs) to collaborate
- Moving beyond MPOs to megaregions
- Scenario planning (incl. California Blueprint Planning)

Old School Transportation Planning



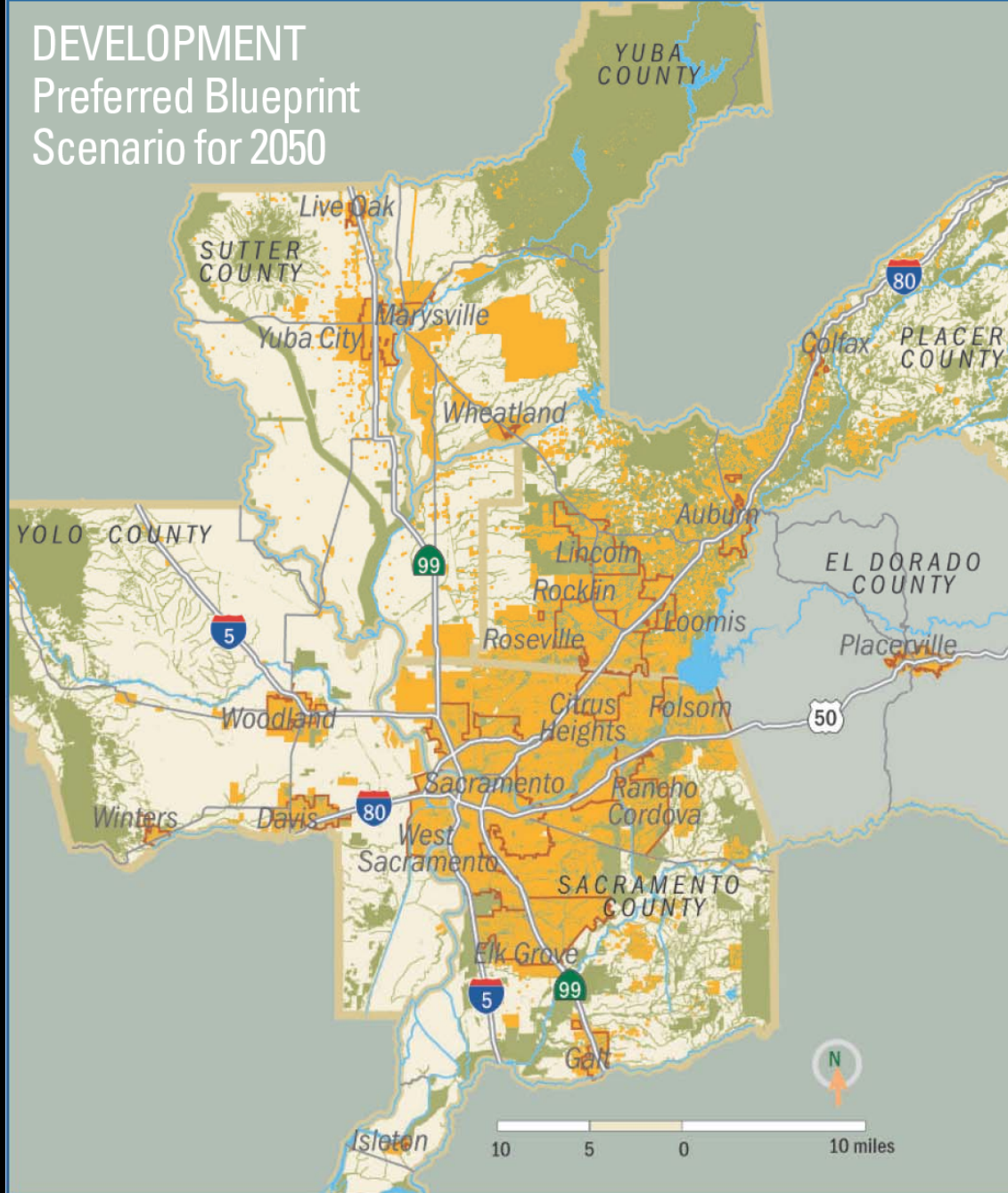
Scenario Planning



Scenario Planning Projects



DEVELOPMENT Preferred Blueprint Scenario for 2050



Key to the Map

- areas of existing and future development
- green areas (e.g. open space, parks, wetlands, vernal pools, stream corridors, hardwood stands)
- agriculture and other undeveloped lands
- rivers, streams and lakes
- city boundaries
- highways
- county boundaries

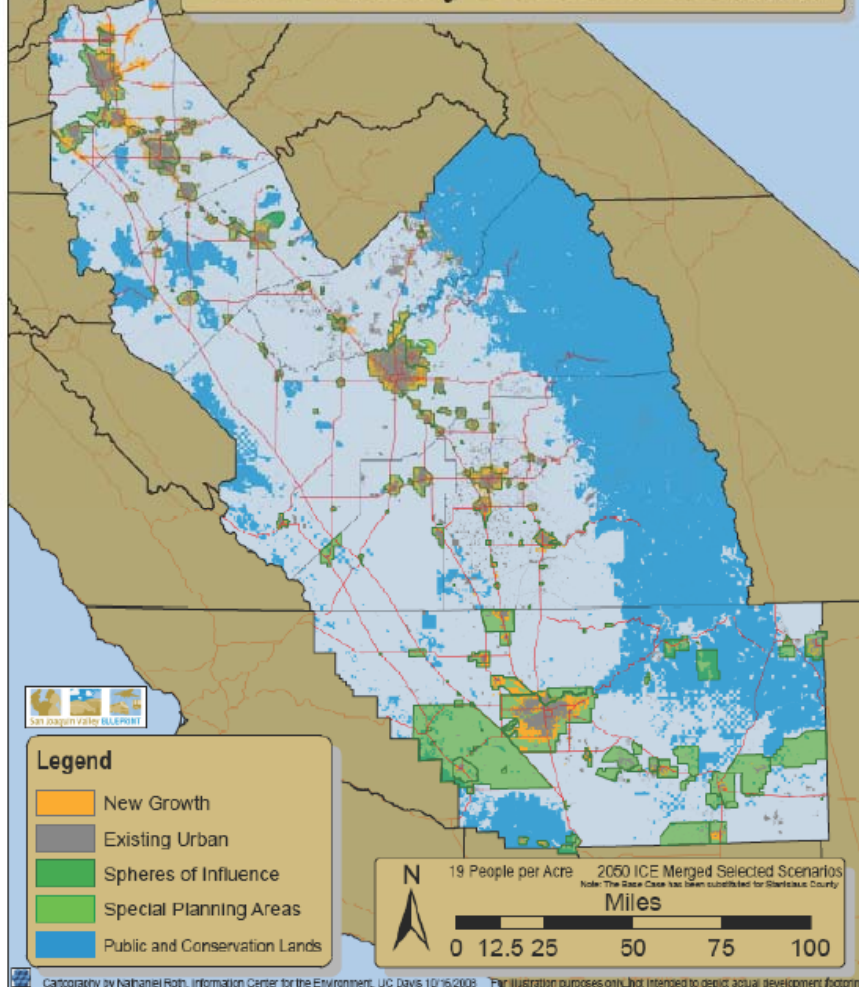
Note: Some vernal pools in Yuba, Sutter and southwest Placer counties are preserved, but are not shown on these maps.

Note: El Dorado County elected not to directly participate in this phase of the Blueprint process due to ongoing issues associated with their General Plan.

For detailed information

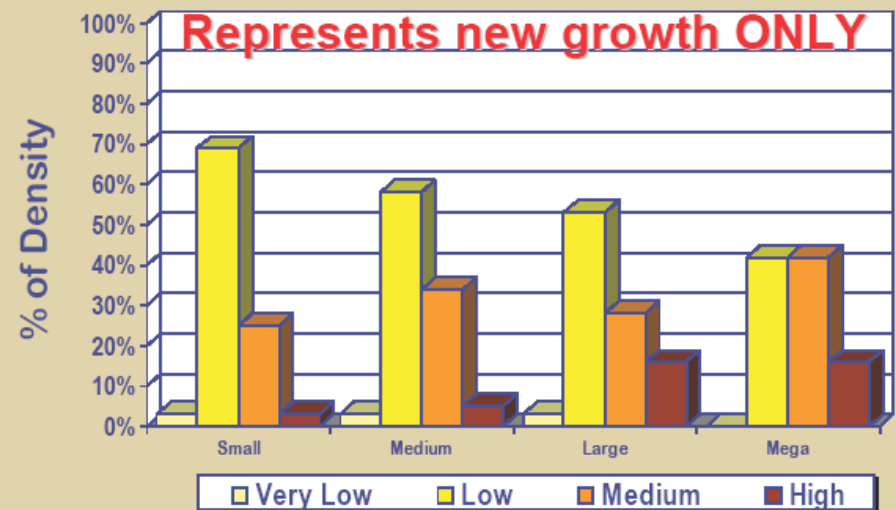
To view the complete land use maps, including where industry, homes, shopping and other uses would be located in the region, please go to www.sacregion-blueprint.org and click on "The Project" tab at the top of the page. There you may view maps for each city and major county area in the region and a variety of statistical and narrative information about the scenarios.

San Joaquin Valley BLUEPRINT 2050 Locally Selected Scenario



• Scenario B

- Created by Individual Counties
- Increased residential densities
- Limits agricultural and environmental impacts



Opportunity 4. Reinventing Transportation Finance

Regional Approaches



Charlier Associates, Inc.

Single Purpose Spending

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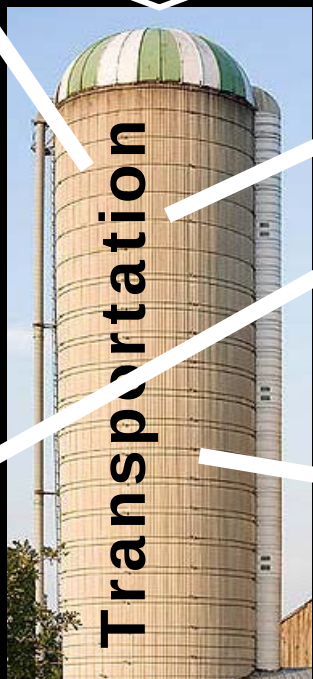
Transportation

Housing

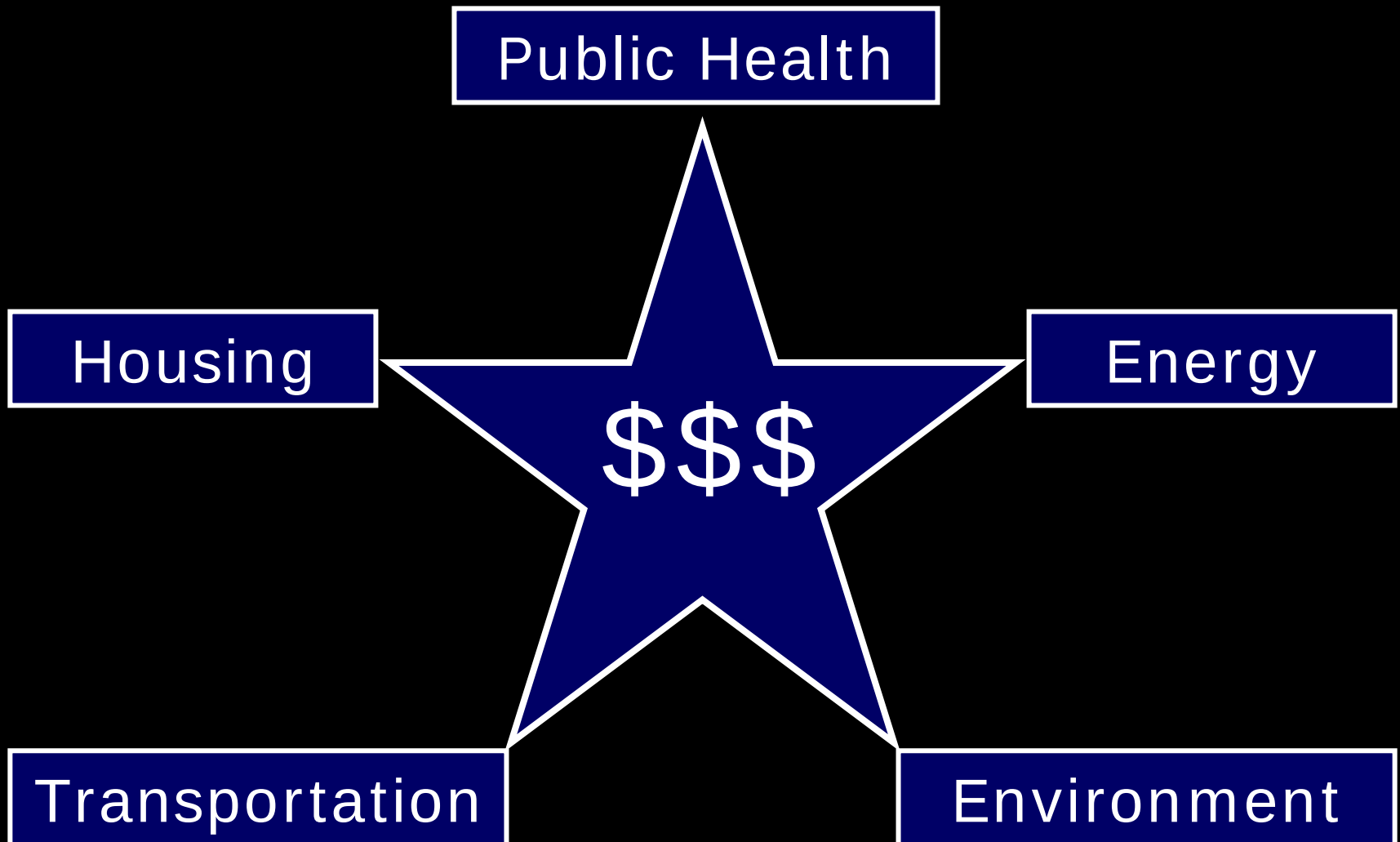
Public Health

Environment

Energy



Integrated, Strategic Investment



Thanking You



Charlier Associates, Inc.

www.charlier.org

