

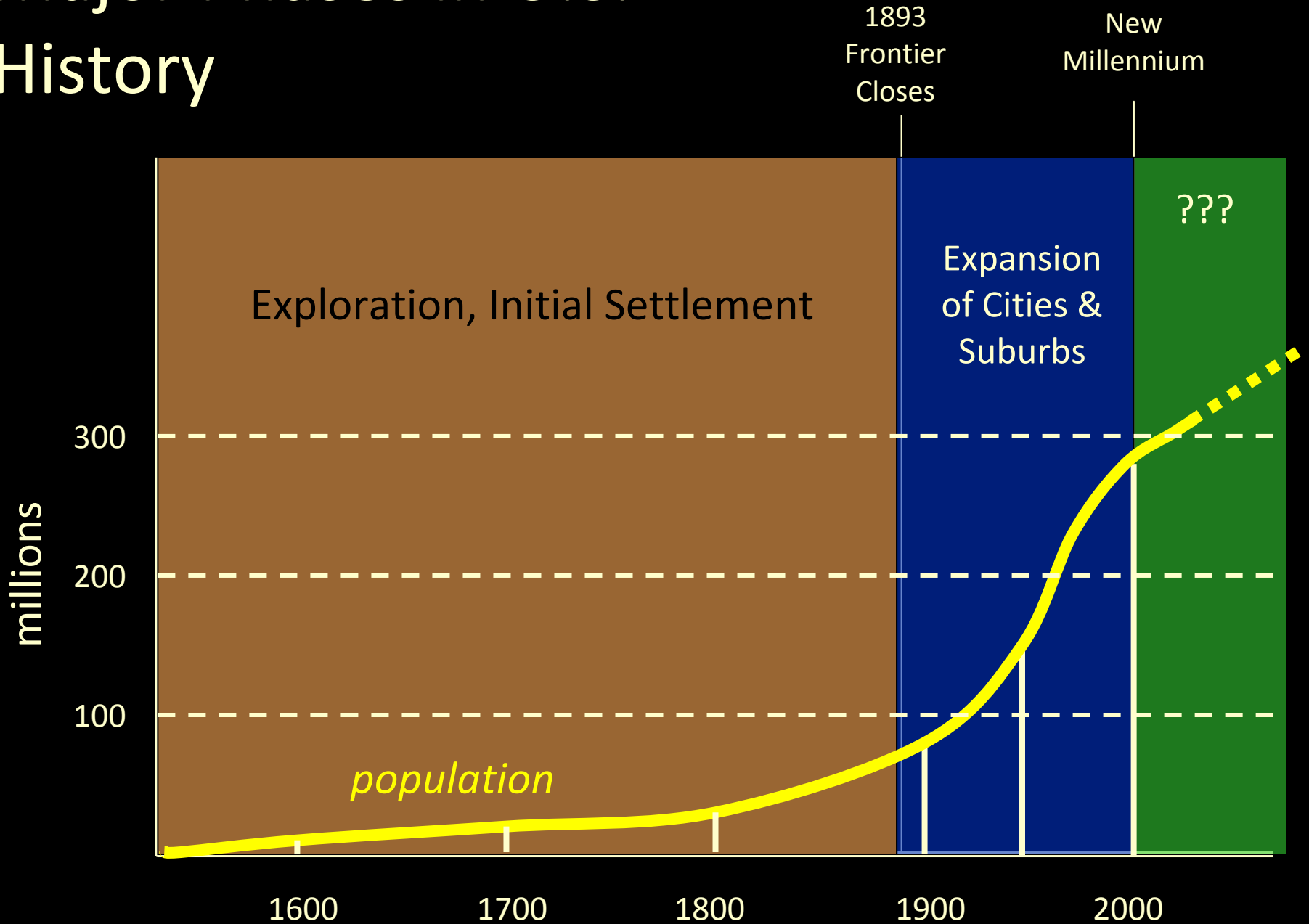
It's Not Your Father's Transportation Program

Brief History of US Roads & Streets

Our Learned Approach

- Build it fast, build it cheap
- Faster, straighter, wider = better
- Don't worry about land use
- Just get 'er done

Major Phases in U.S. History

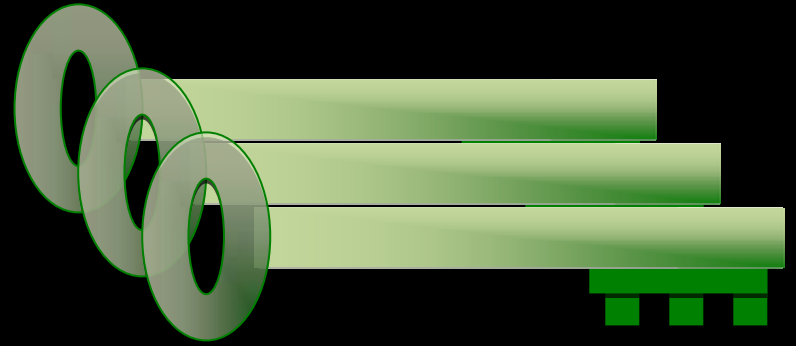




Needed: Keys to the Future



3 Keys



Transportation and the Future

1

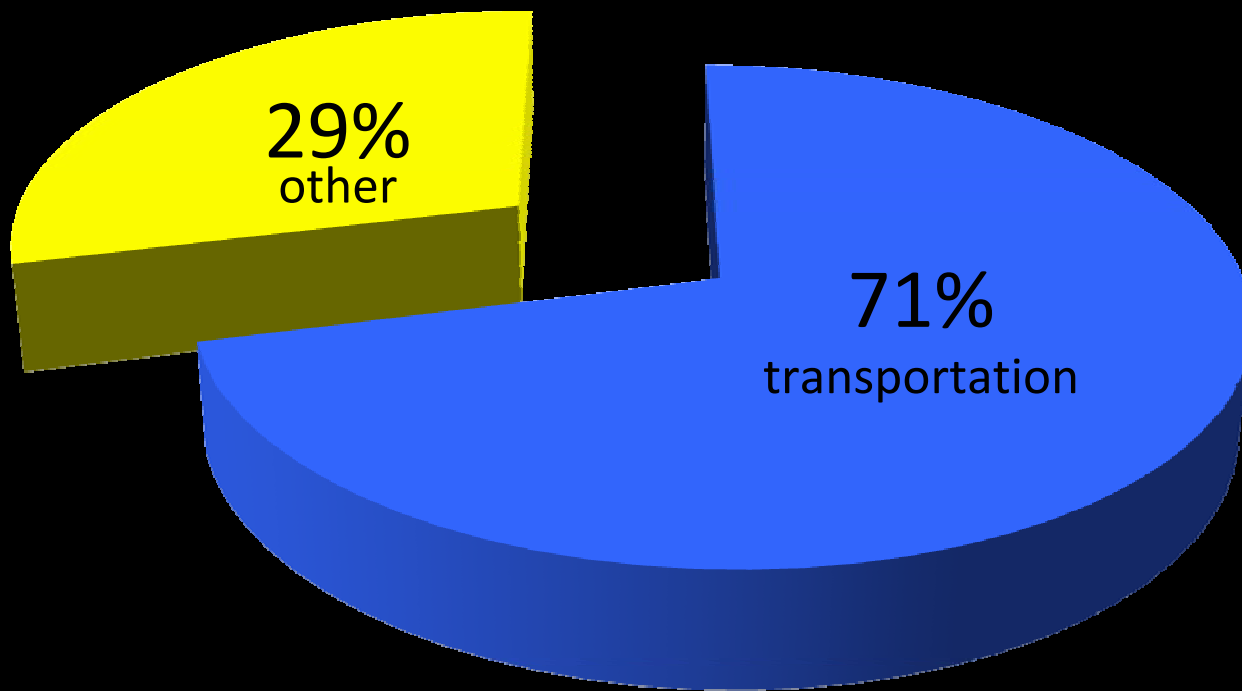


Energy

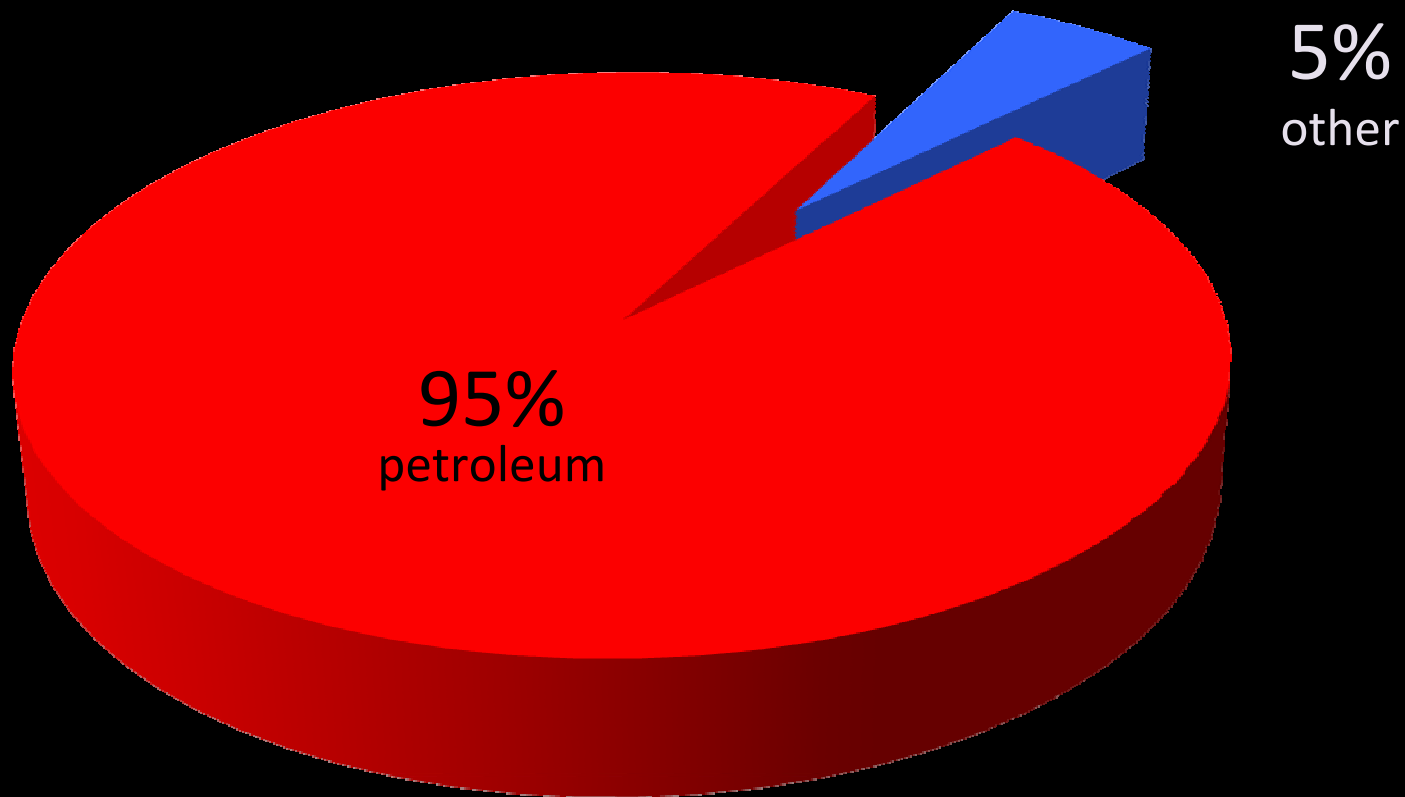
Petroleum Dependency



How petroleum is used in the US



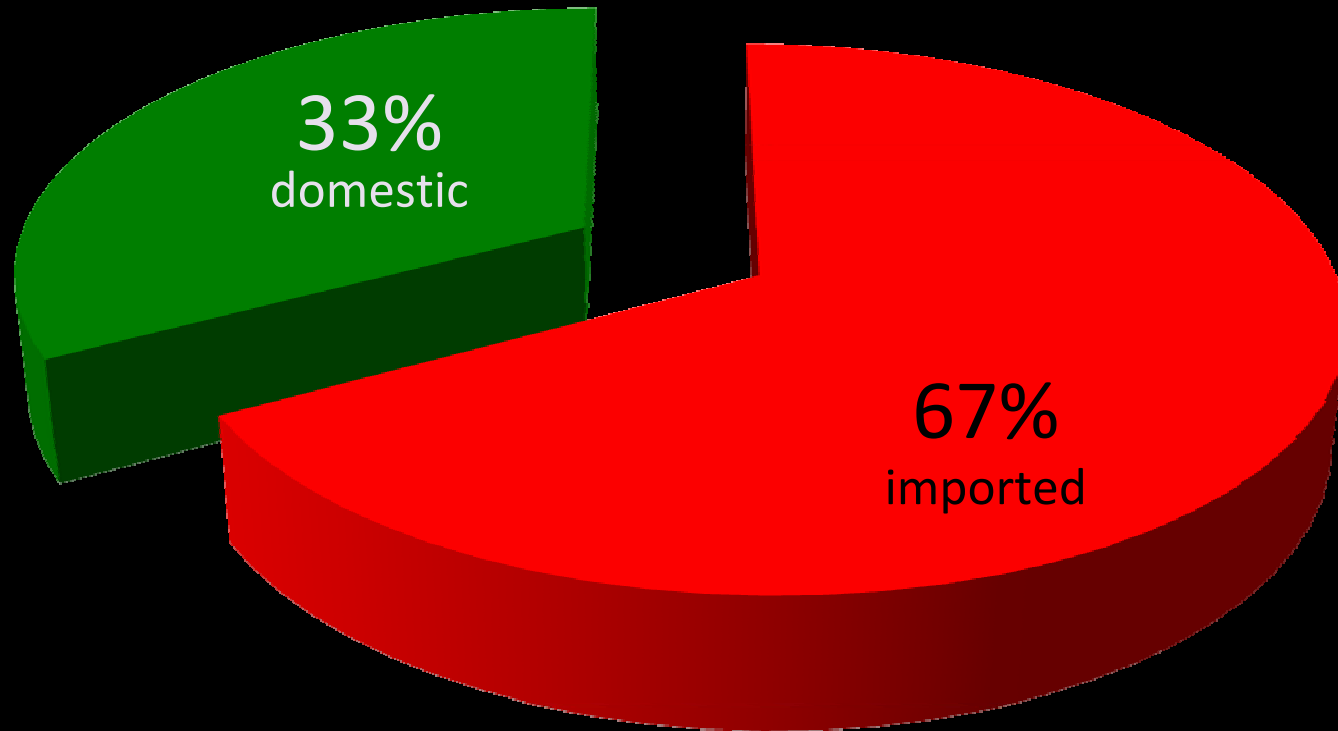
Sources of energy for transportation in the US



Our transportation systems are almost entirely dependent on oil



Where our oil comes from



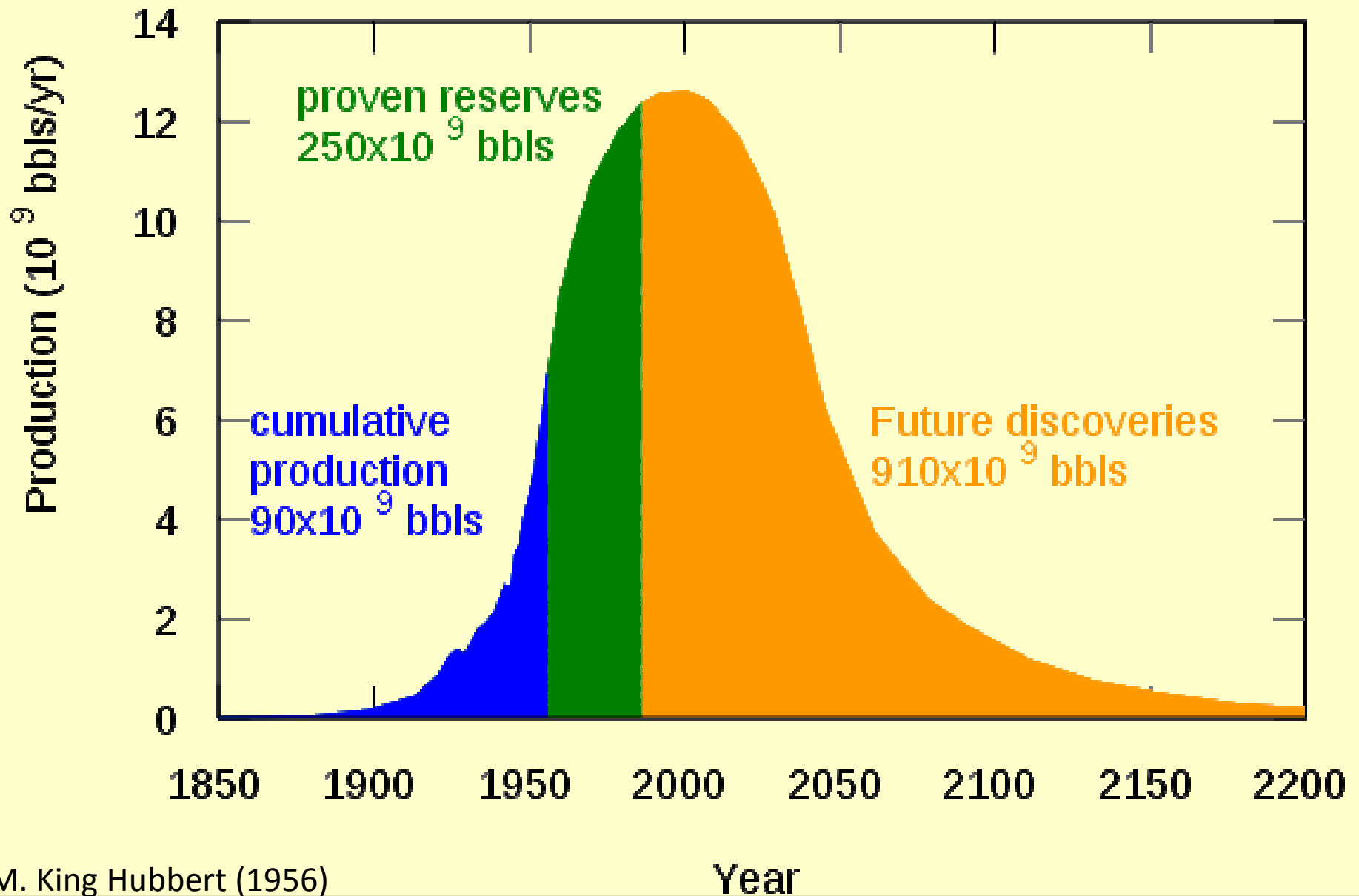
2008 US Net Petroleum Trade Deficit: \$300 B

Our transportation systems are
almost entirely dependent on oil
imported

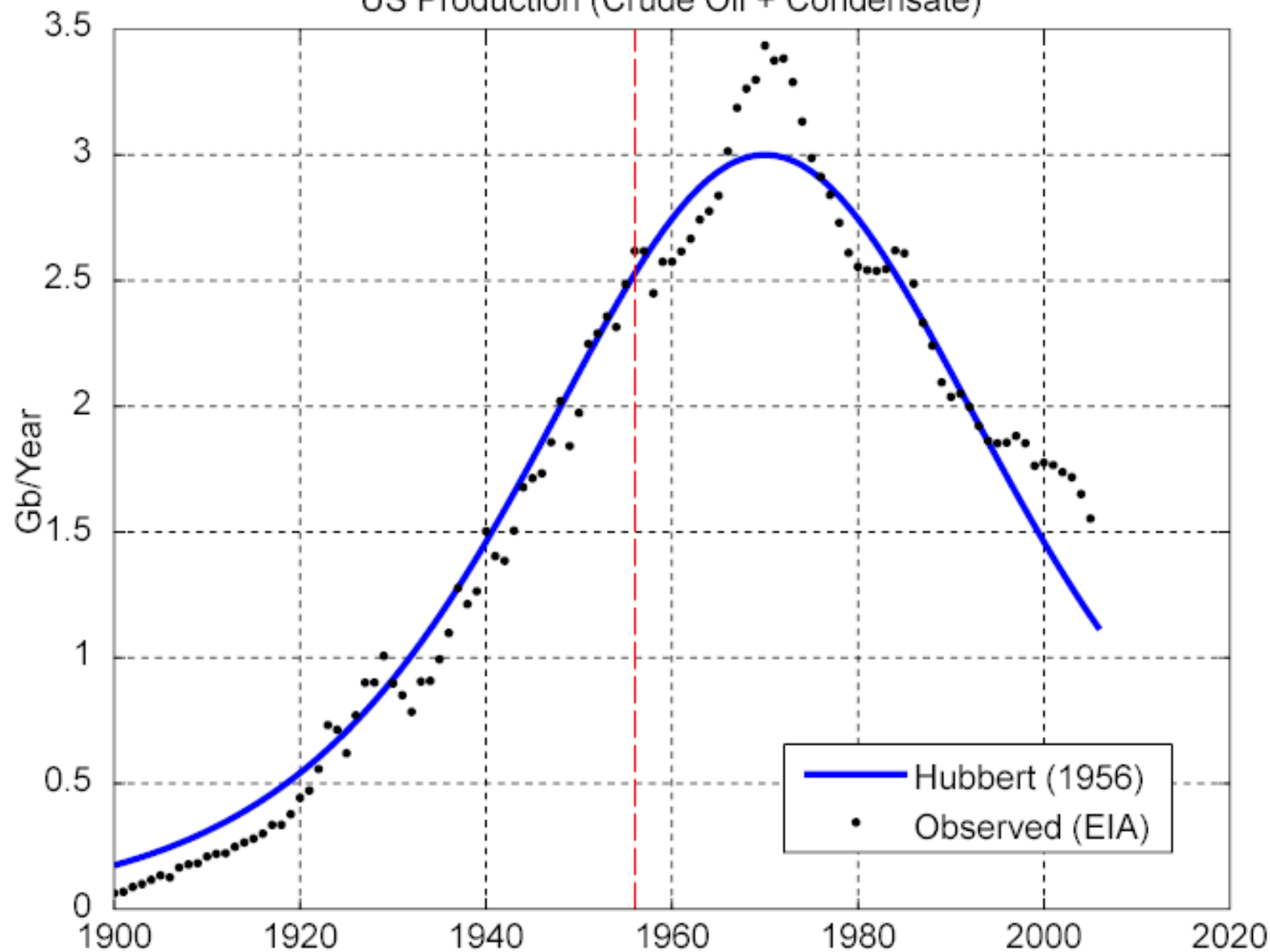


“Peak Oil”

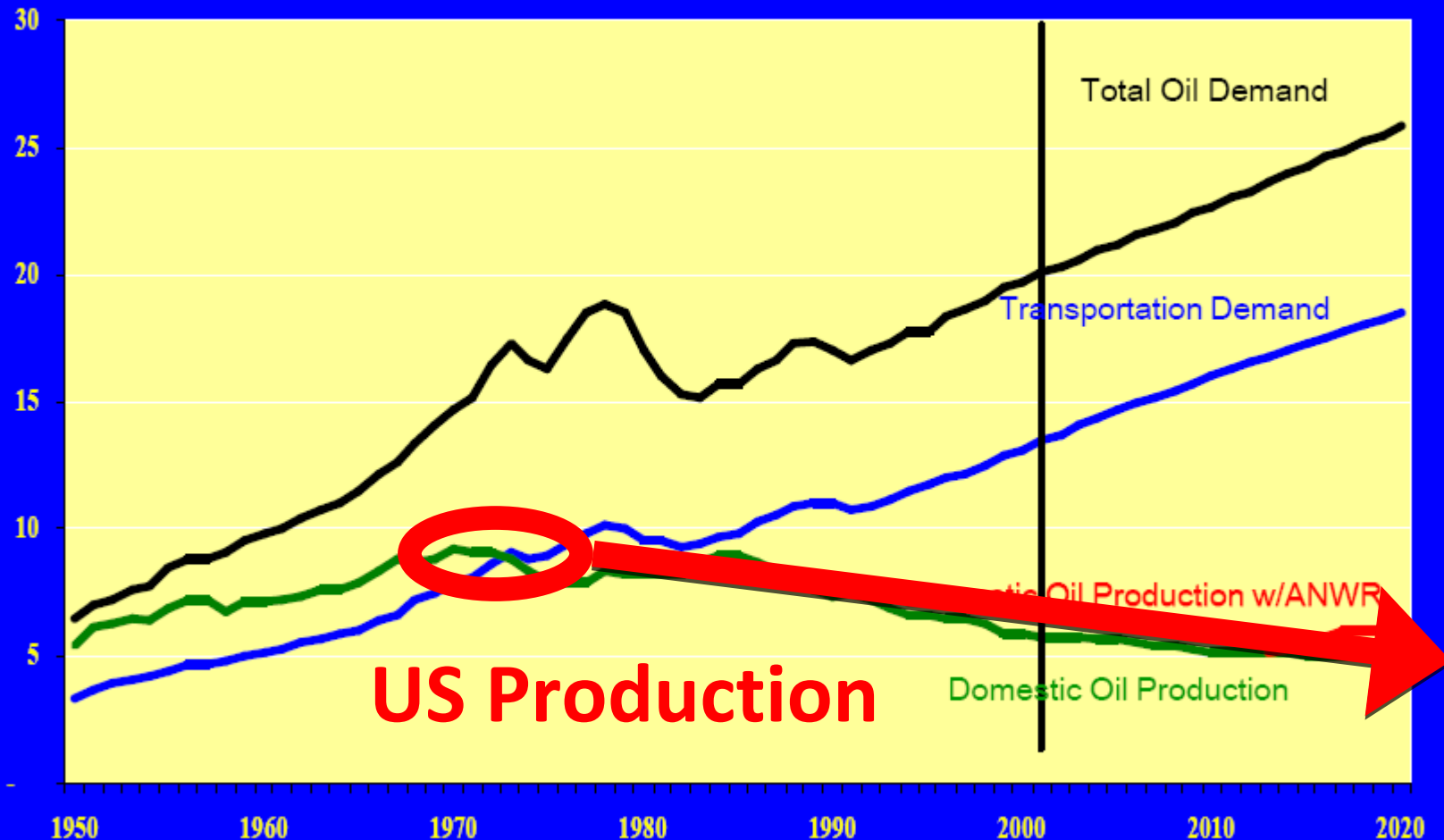
The Original Hubbert Curve



US Production (Crude Oil + Condensate)



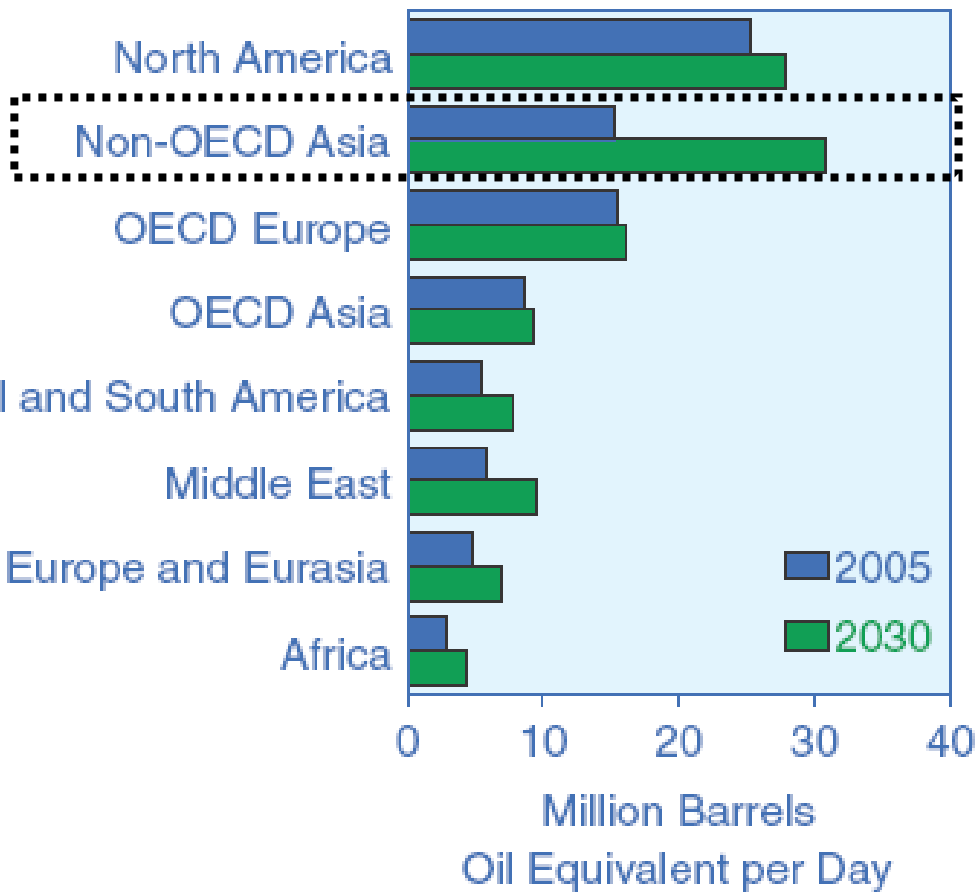
US Oil Consumption (million barrels per day)



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

Petroleum Demand by World Region

Figure 29. World Liquids Consumption by Region and Country Group, 2005 and 2030



India & China
will double
their demand
for petroleum
by 2030

The oil is not gone...

...but the cheap oil is gone.



Those were
the days!







BP's Thunder Horse Field
Production Facility Cost:
\$1 billion





NAVIGATION



EASTING	440932
NORTHING	7136751
ELEV	324/72
SPEED	0



BP's Thunder Horse Field

7,000 feet

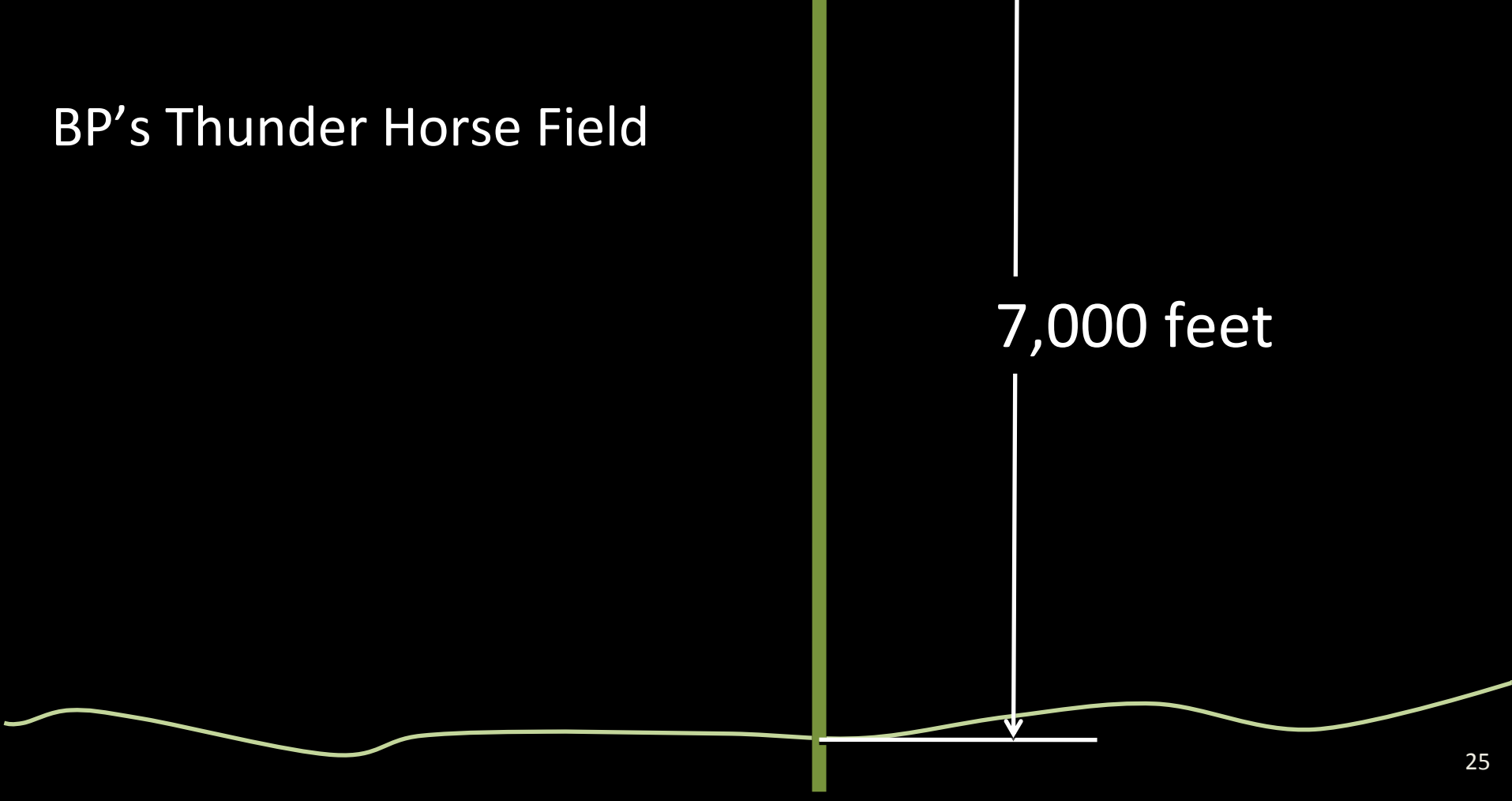
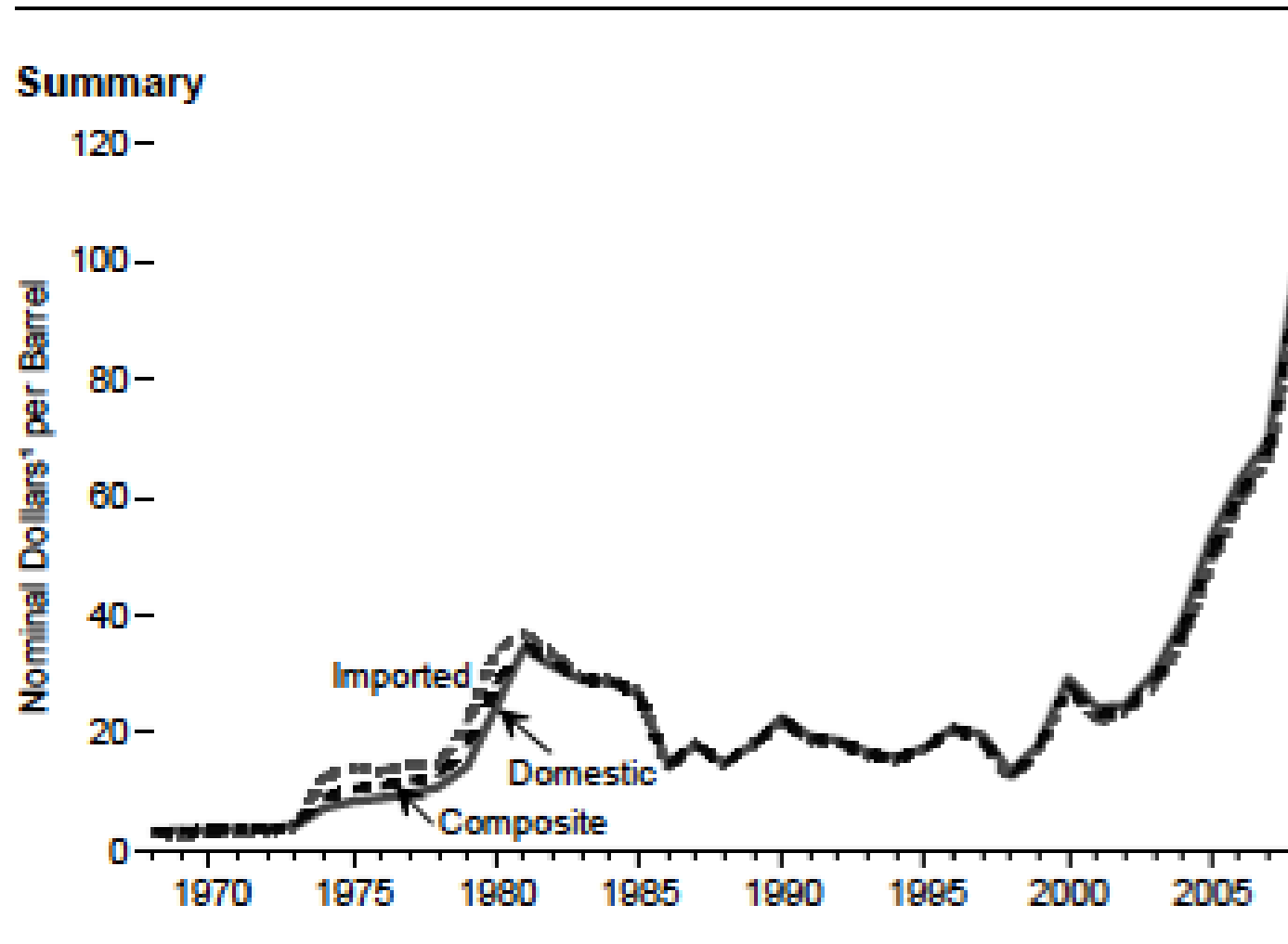
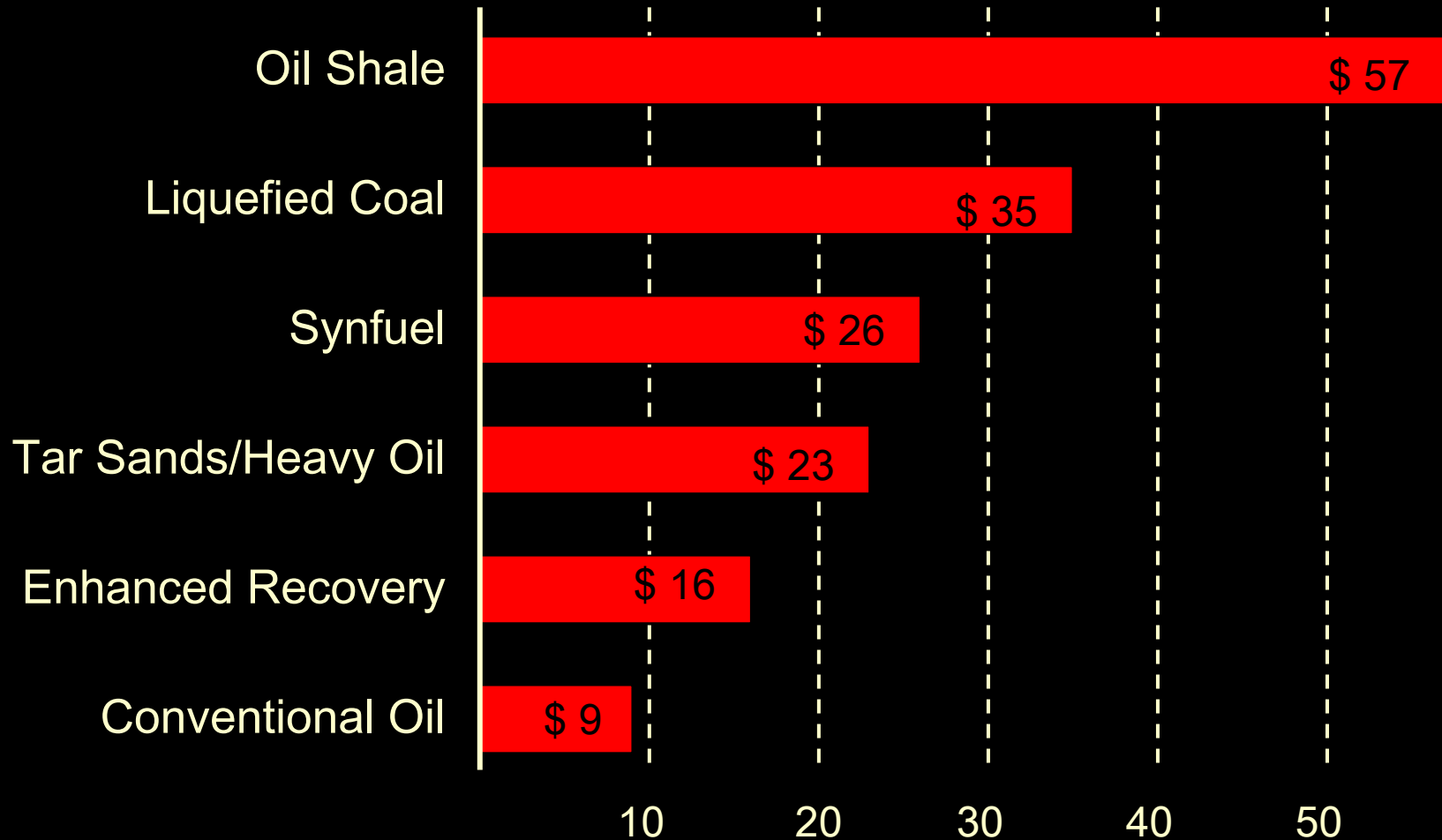


Figure 5.21 Crude Oil Refiner Acquisition Costs, 1



Production Cost – Sources of Oil

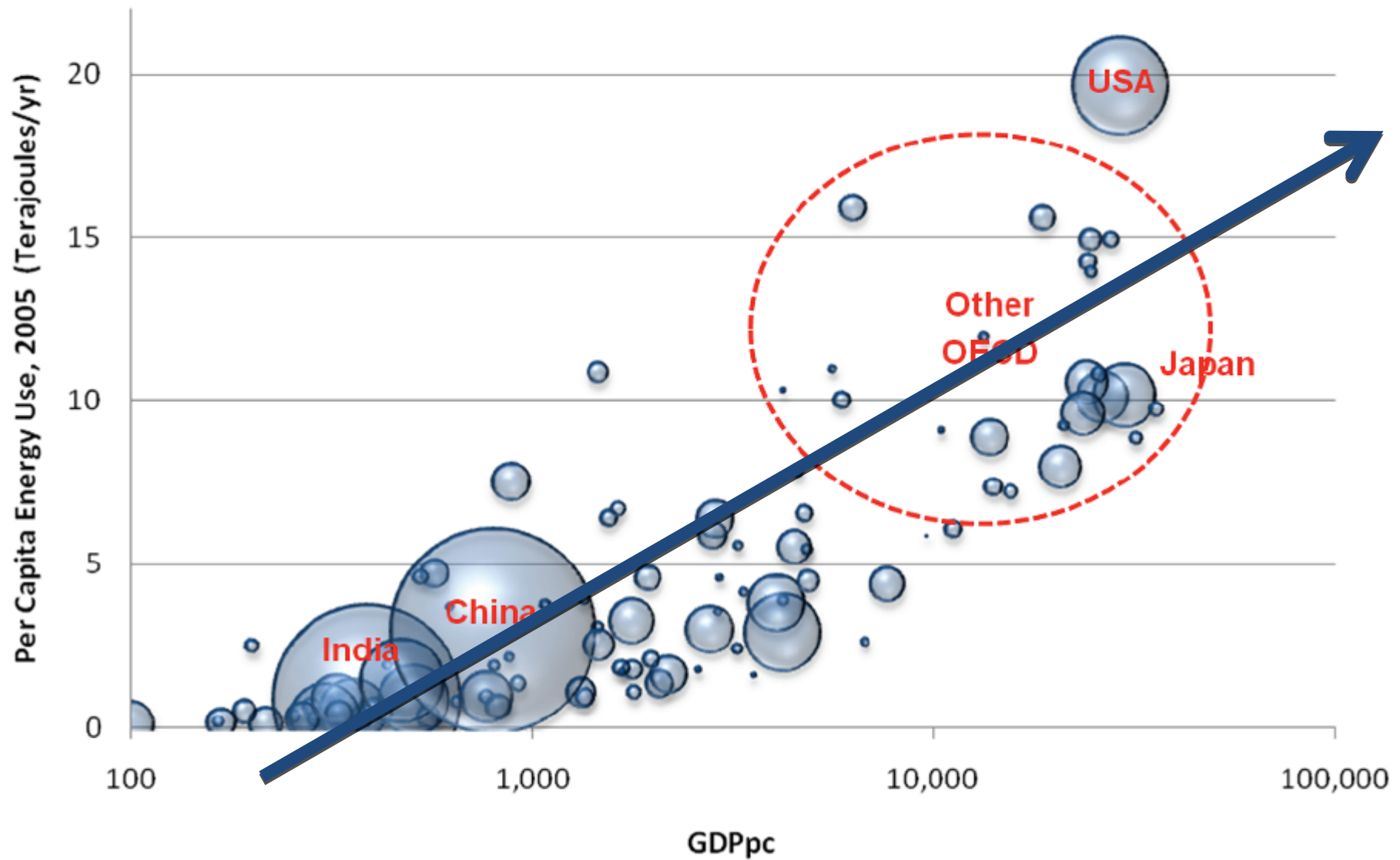
Production Cost Per Barrel of Oil - 2007



Will energy prices control our economic growth?

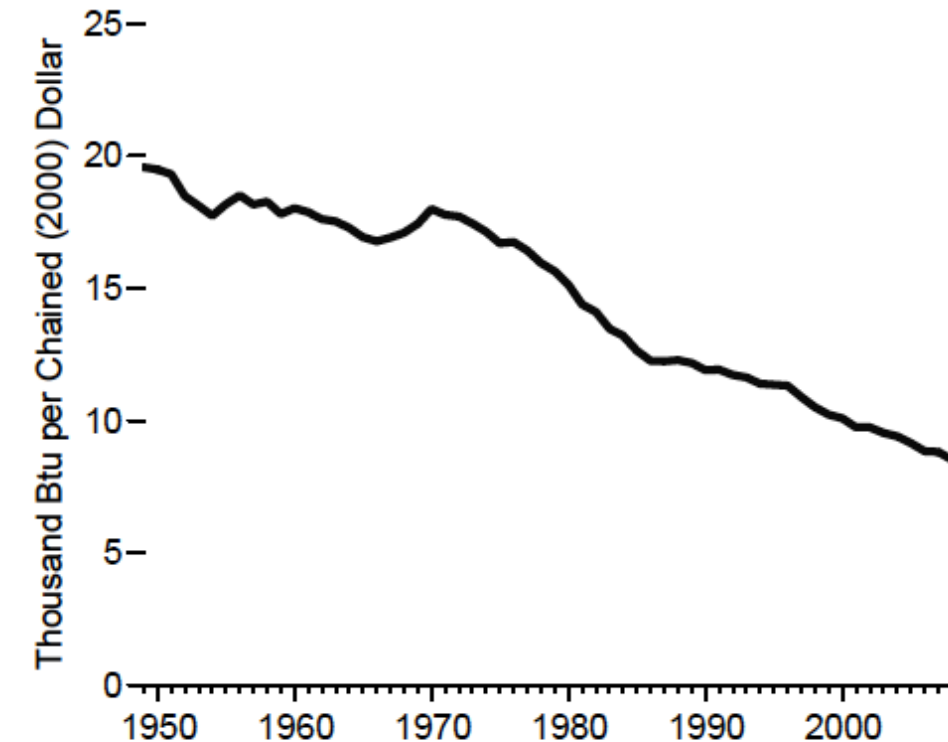


Figure 3: Energy and Income, by Country, Income, and Population (2005)

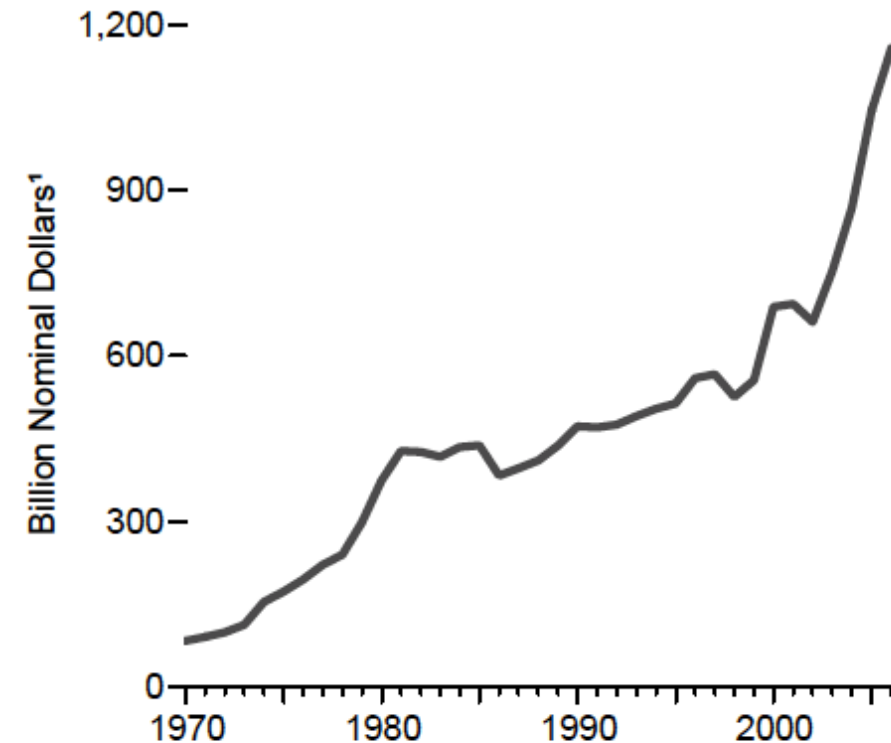


We have used cheap energy to drive economic growth

Energy Consumption per Real Dollar² of Gross Domestic Product, 1949-2008

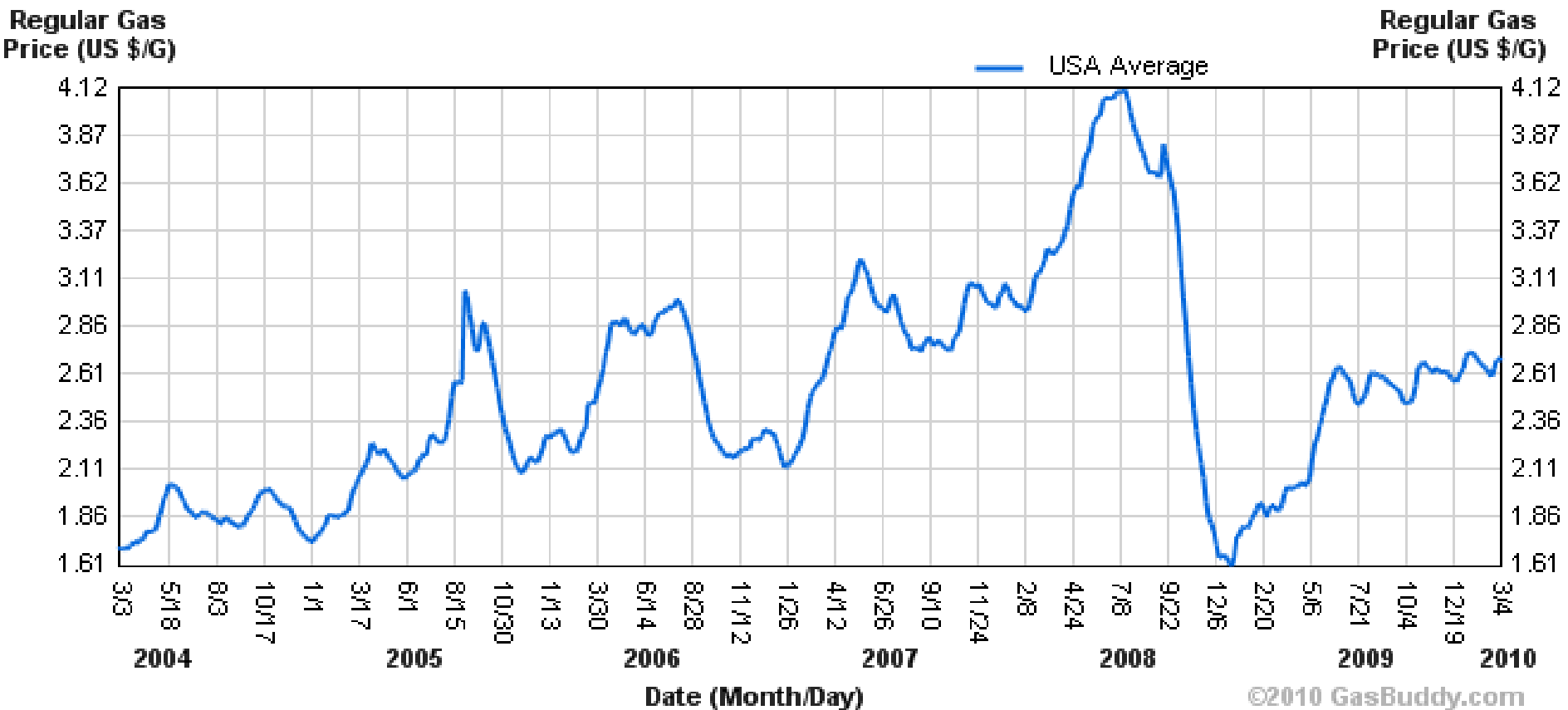


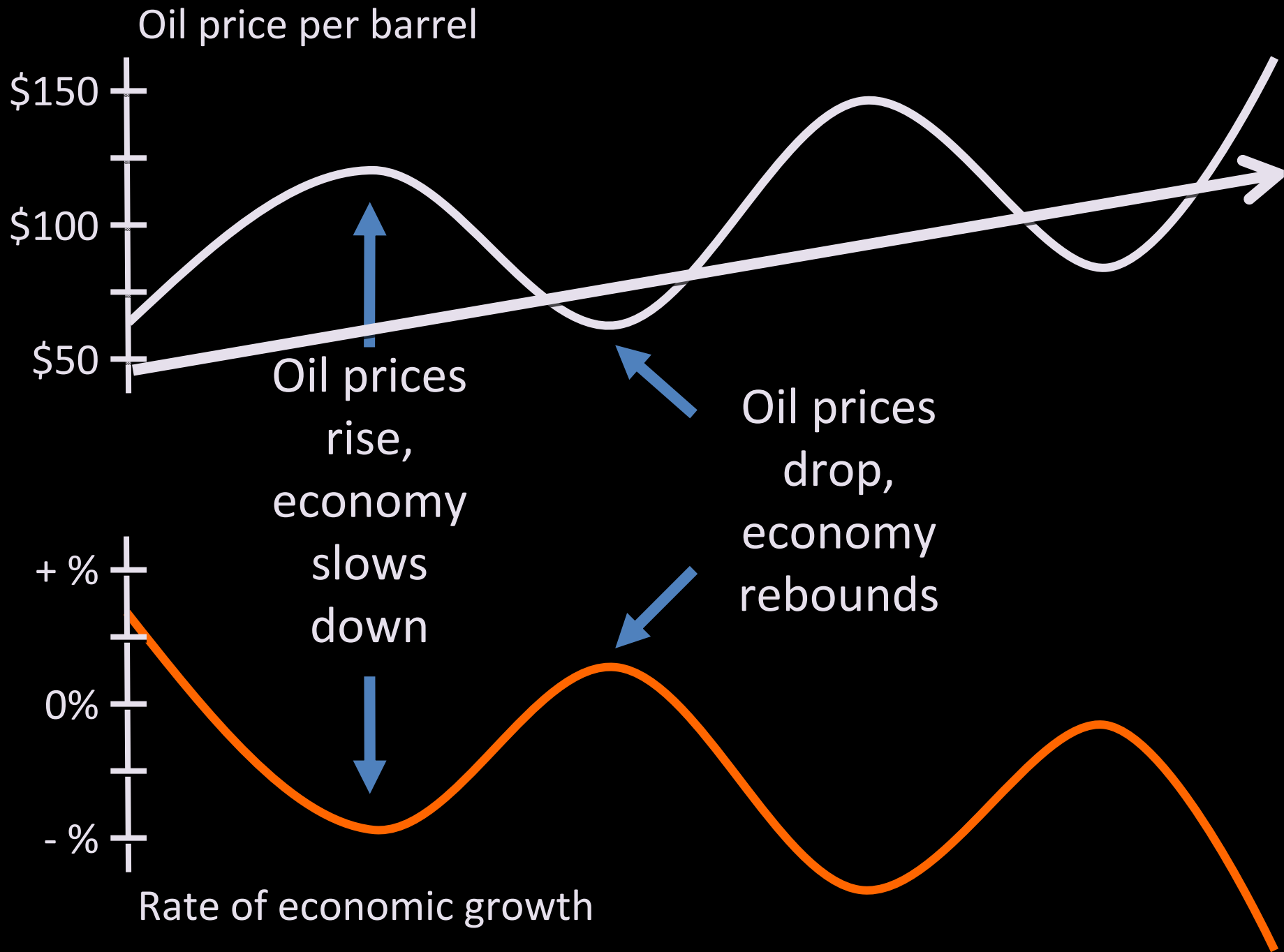
Energy Expenditures, 1970-2006

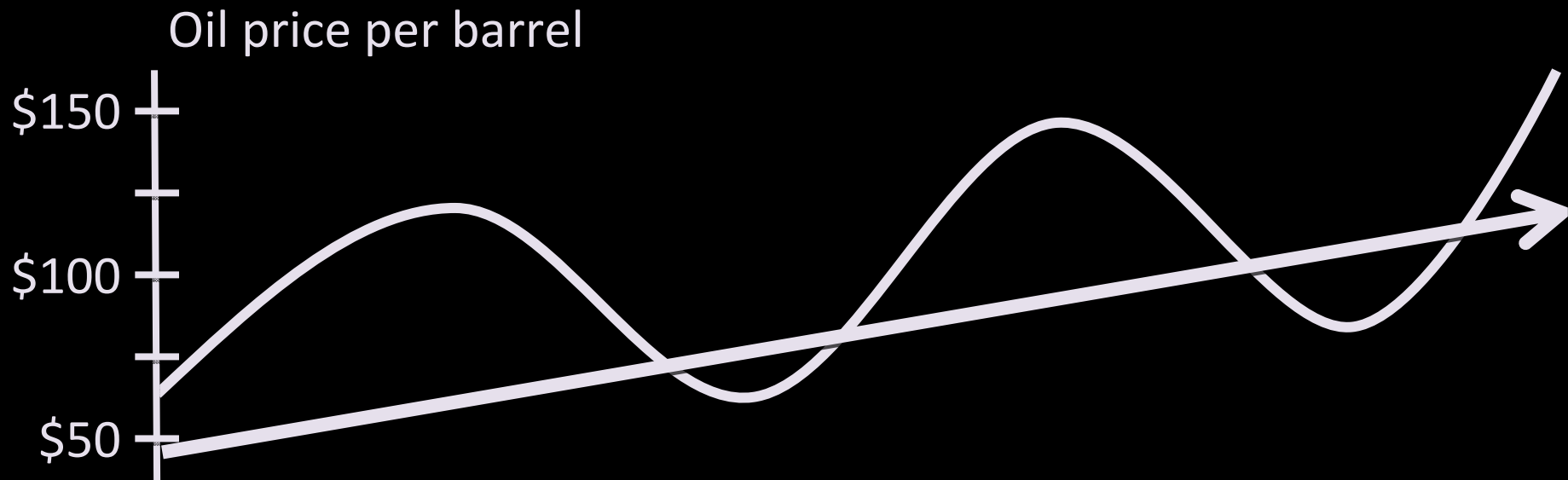


Volatile Gas Prices

72 Month Average Retail Price Chart







“playing ping pong on a train”

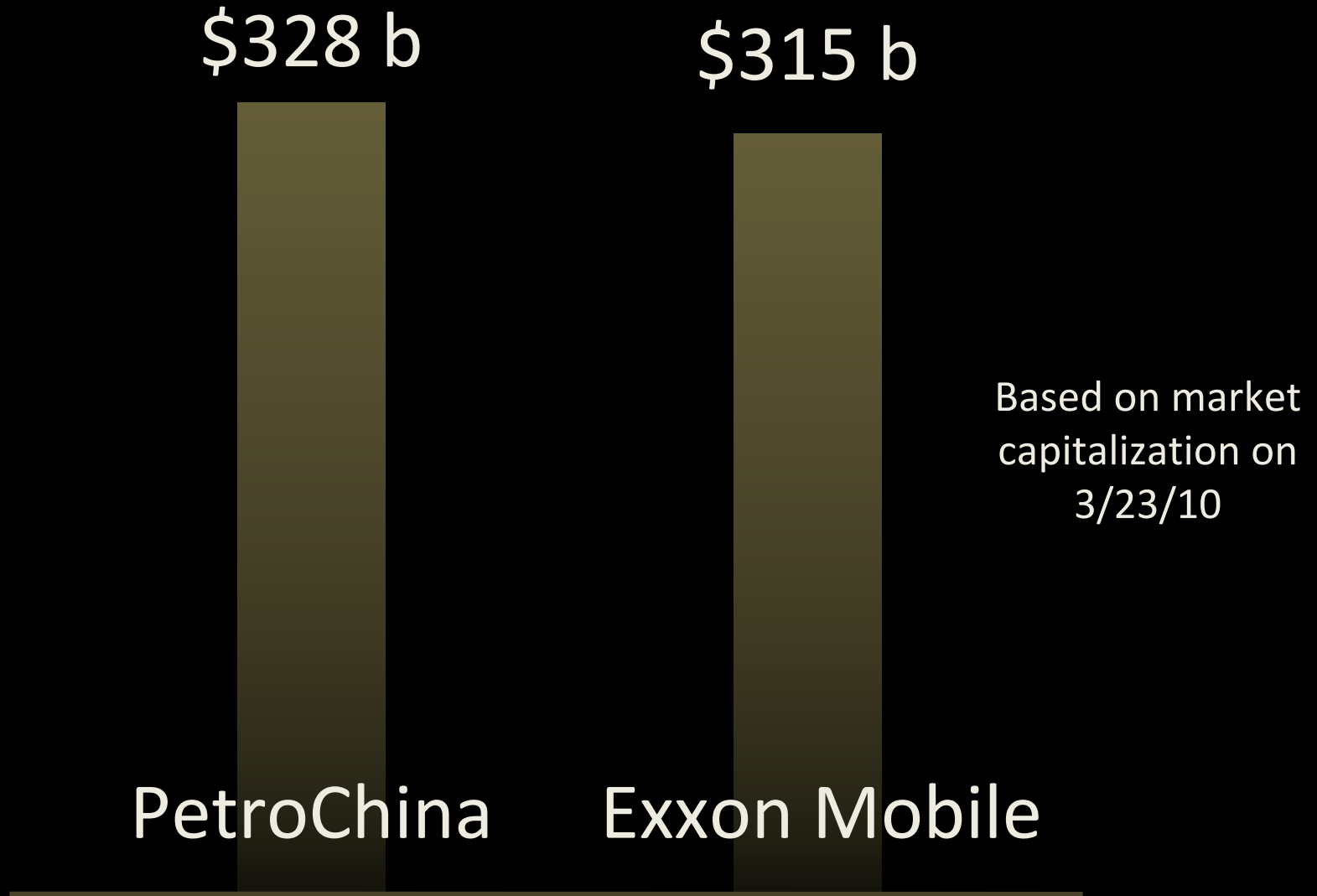
EIA 2011 Fuels Outlook

Crude Oil	\$80/barrel
-----------	-------------

Gasoline	\$3.00/gallon
----------	---------------

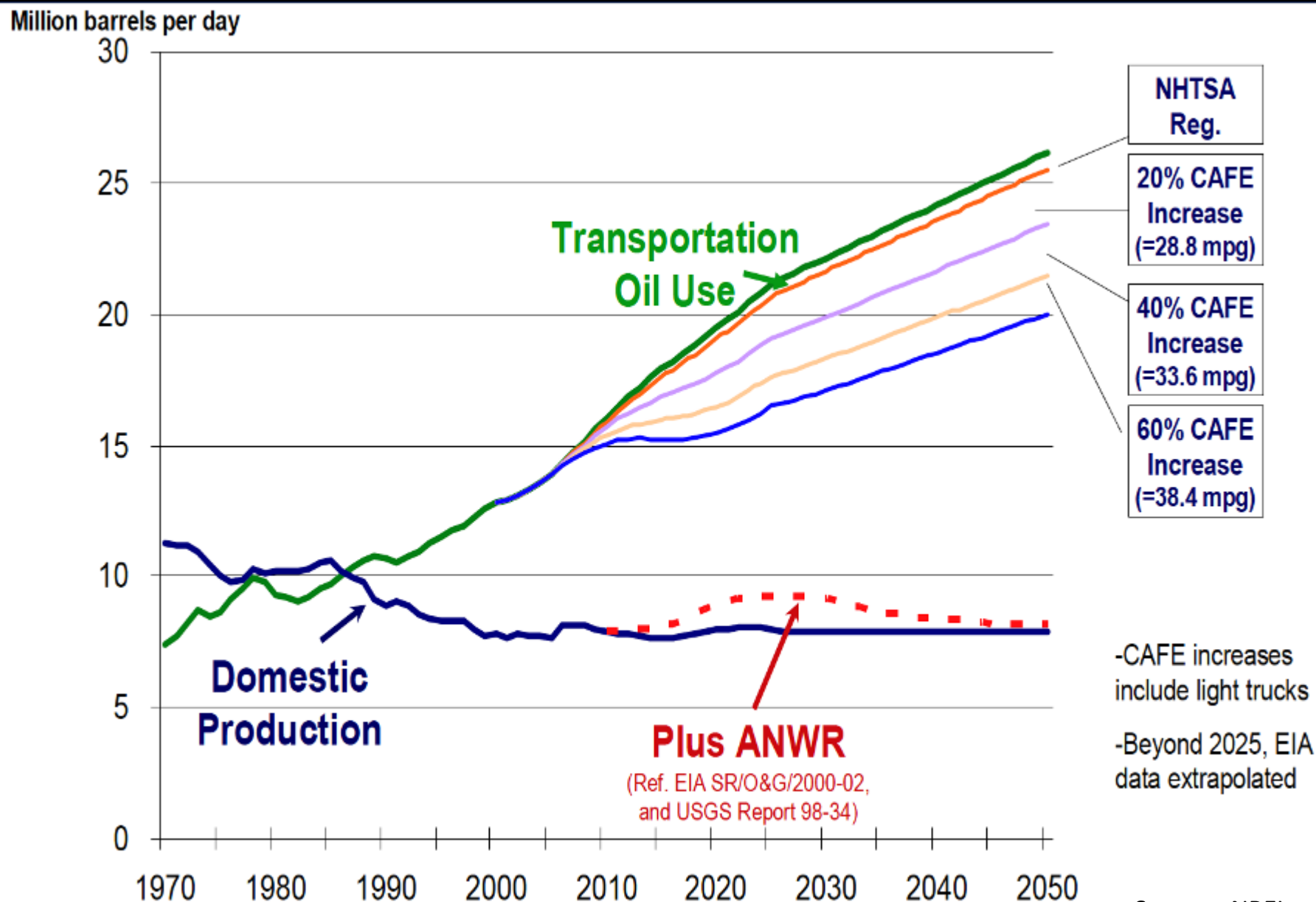


World's Two Largest Companies



Maybe technology will save us?

Potential Reduction in Petroleum Consumption Through Technology



Electric cars
have a role
to play, but...



...will be expensive and...

...will create energy demand issues.

Total Motor Vehicles
in Service in US in 2010

250,000,000

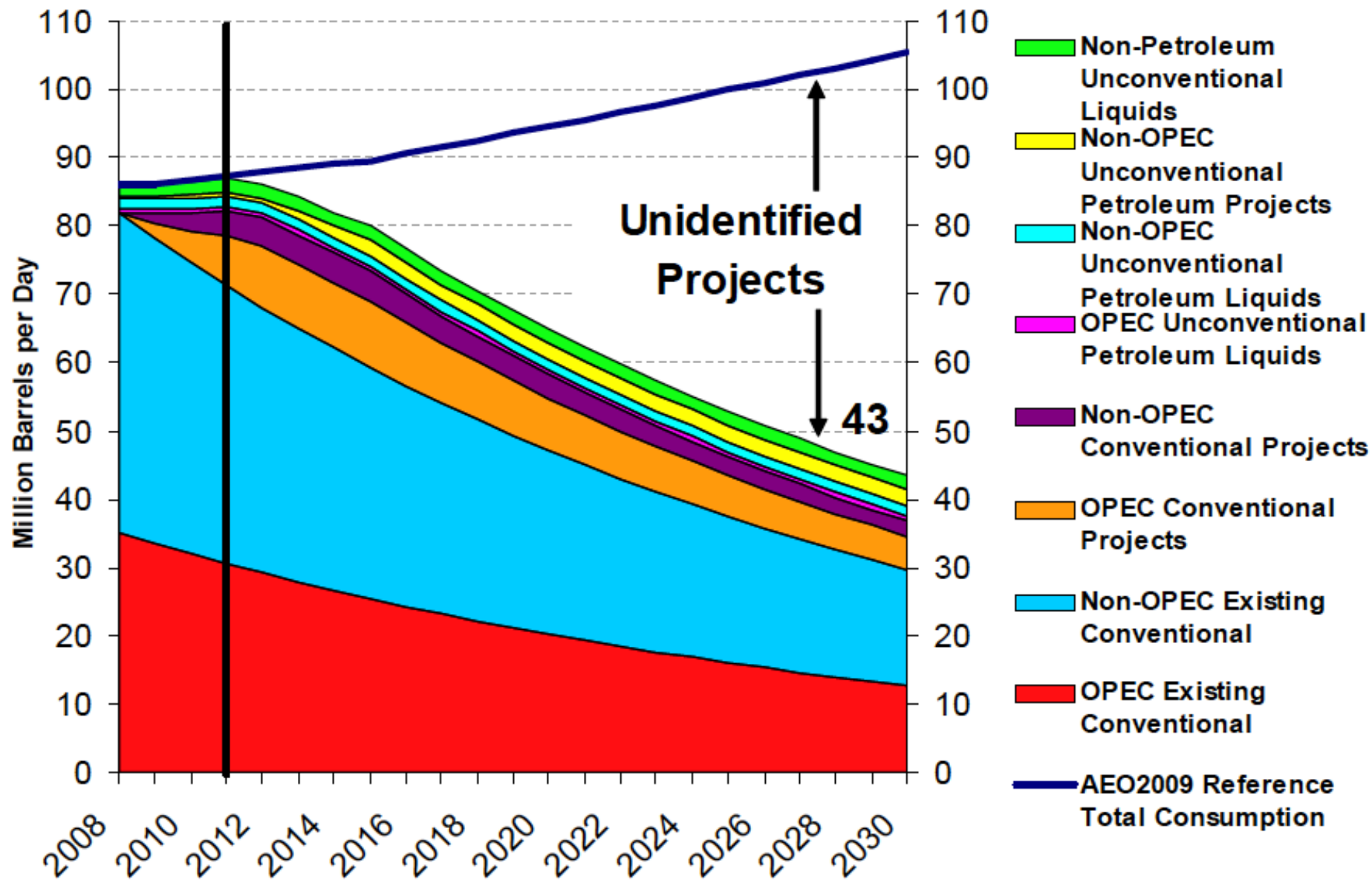
Total Electric Autos in
Service by End of 2012

100,000

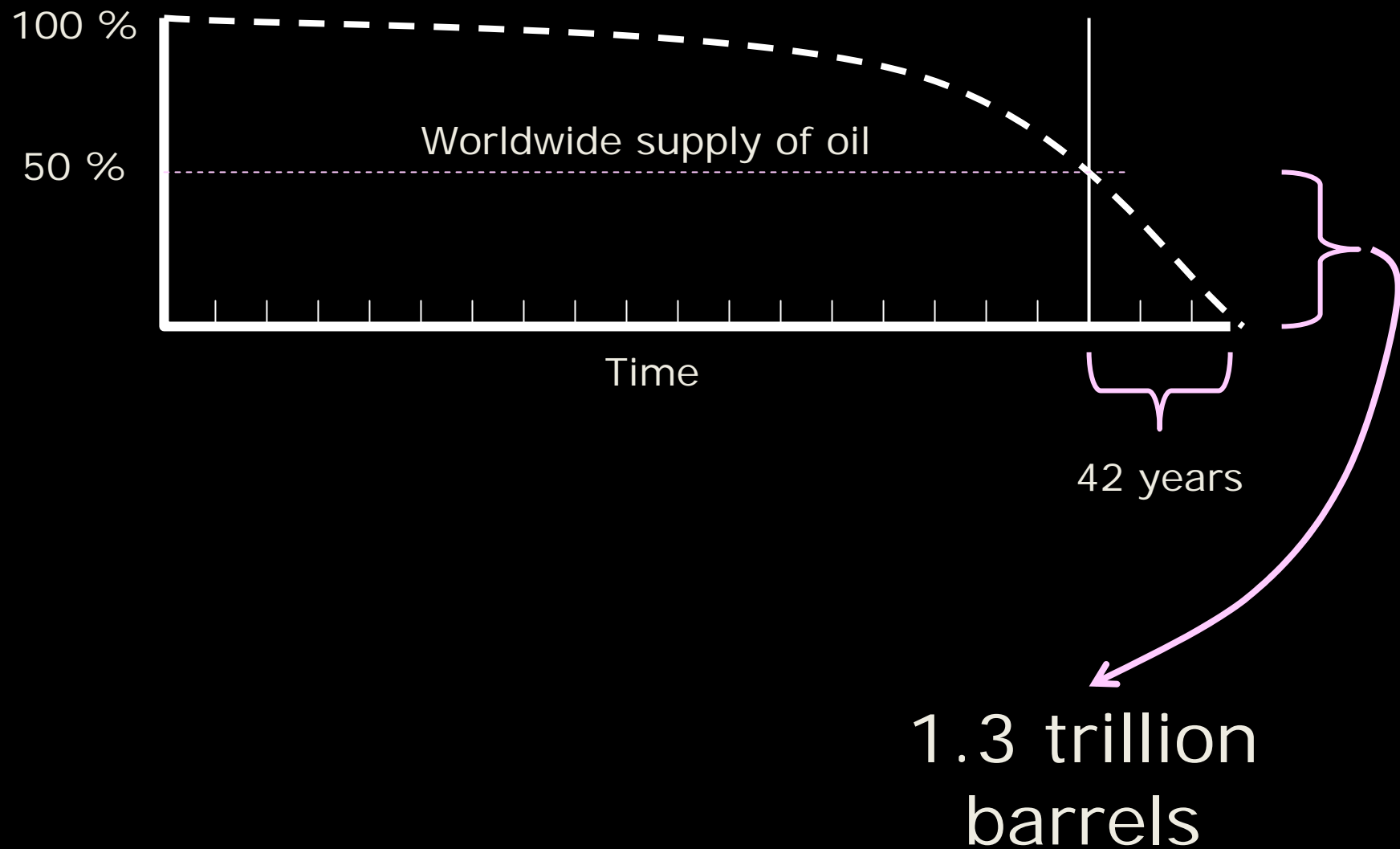
0.04%

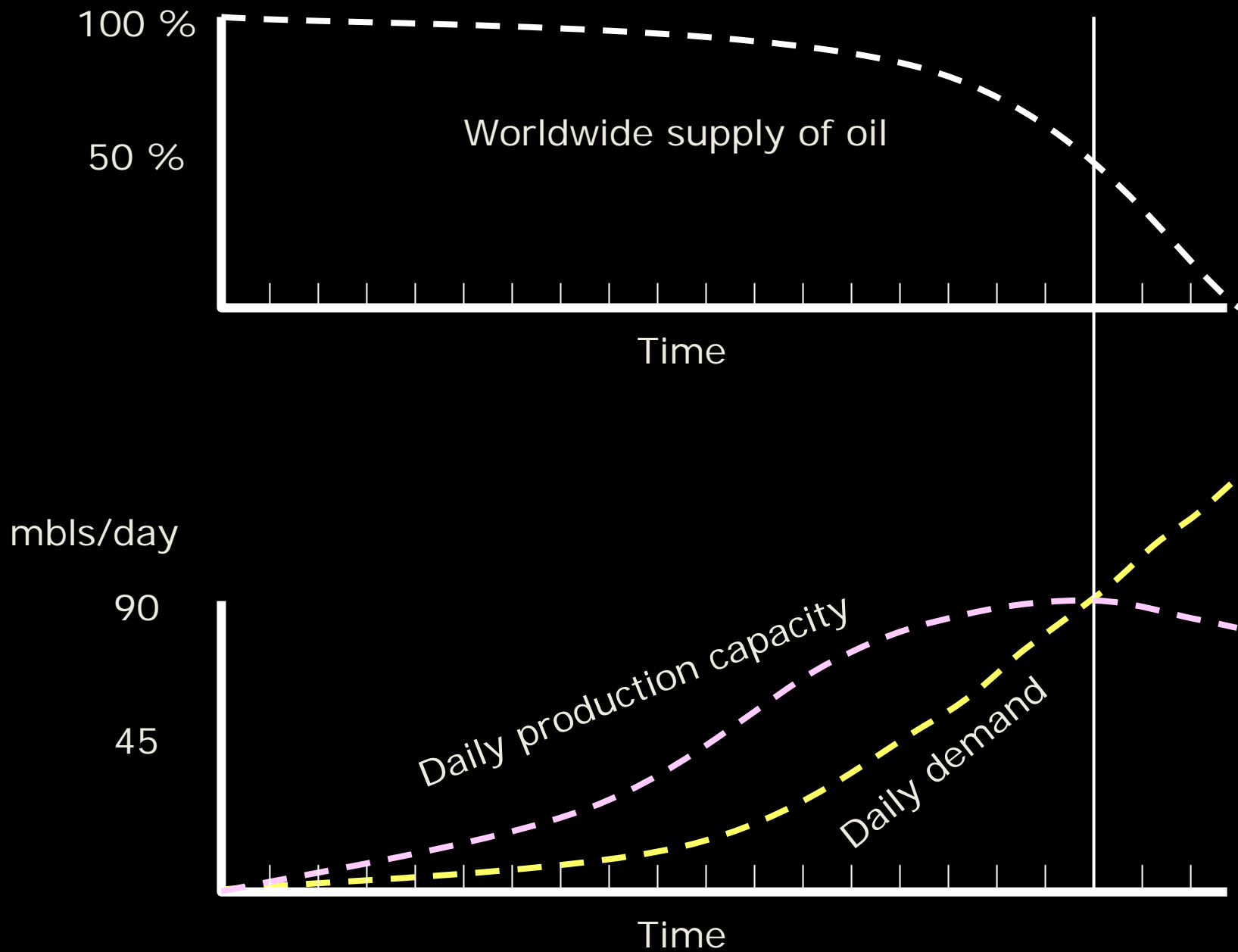
Technology will not save the day

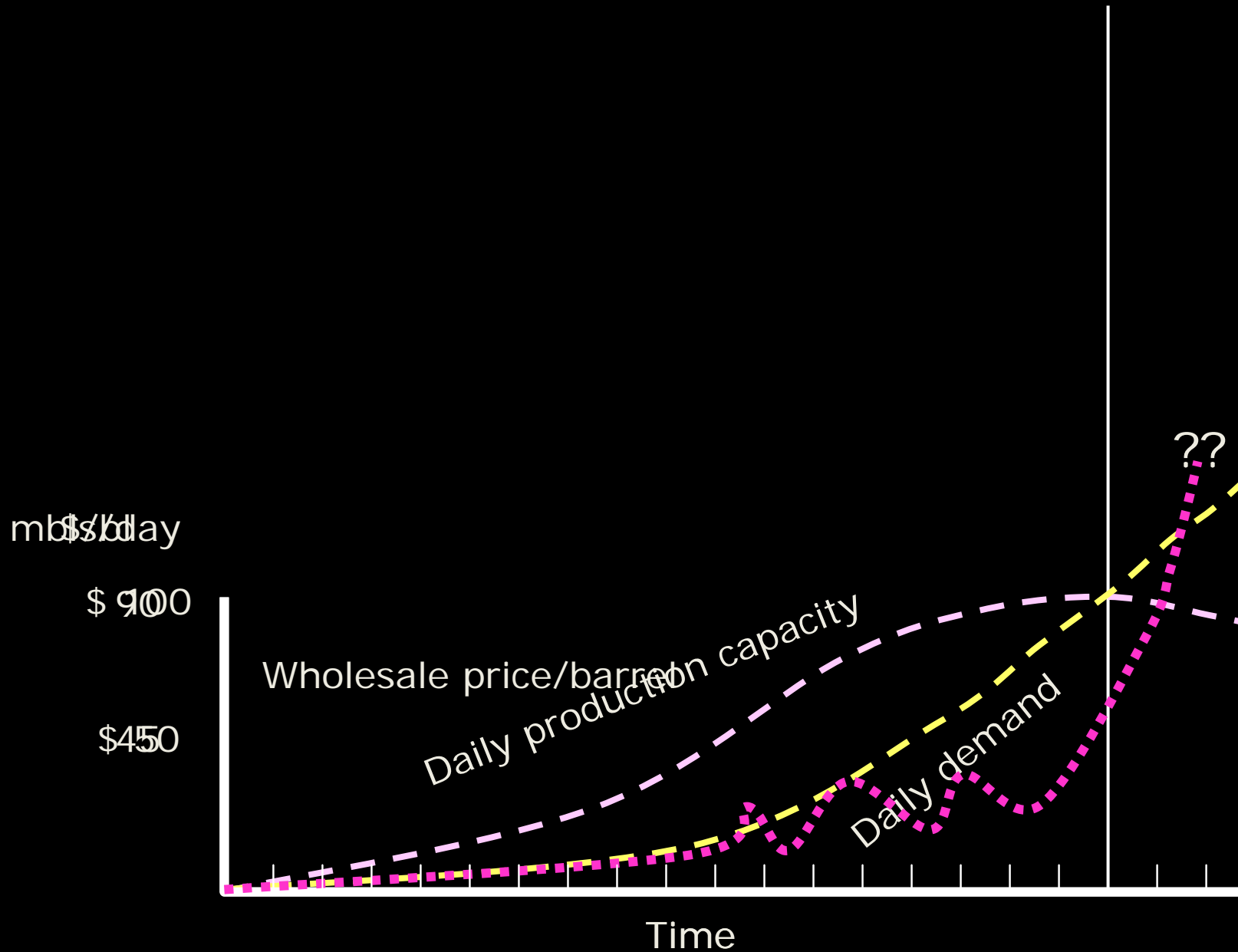
World's Liquid Fuels Supply



Source: EIA, AEO2009







The oil is not gone...

...but the cheap oil is gone.

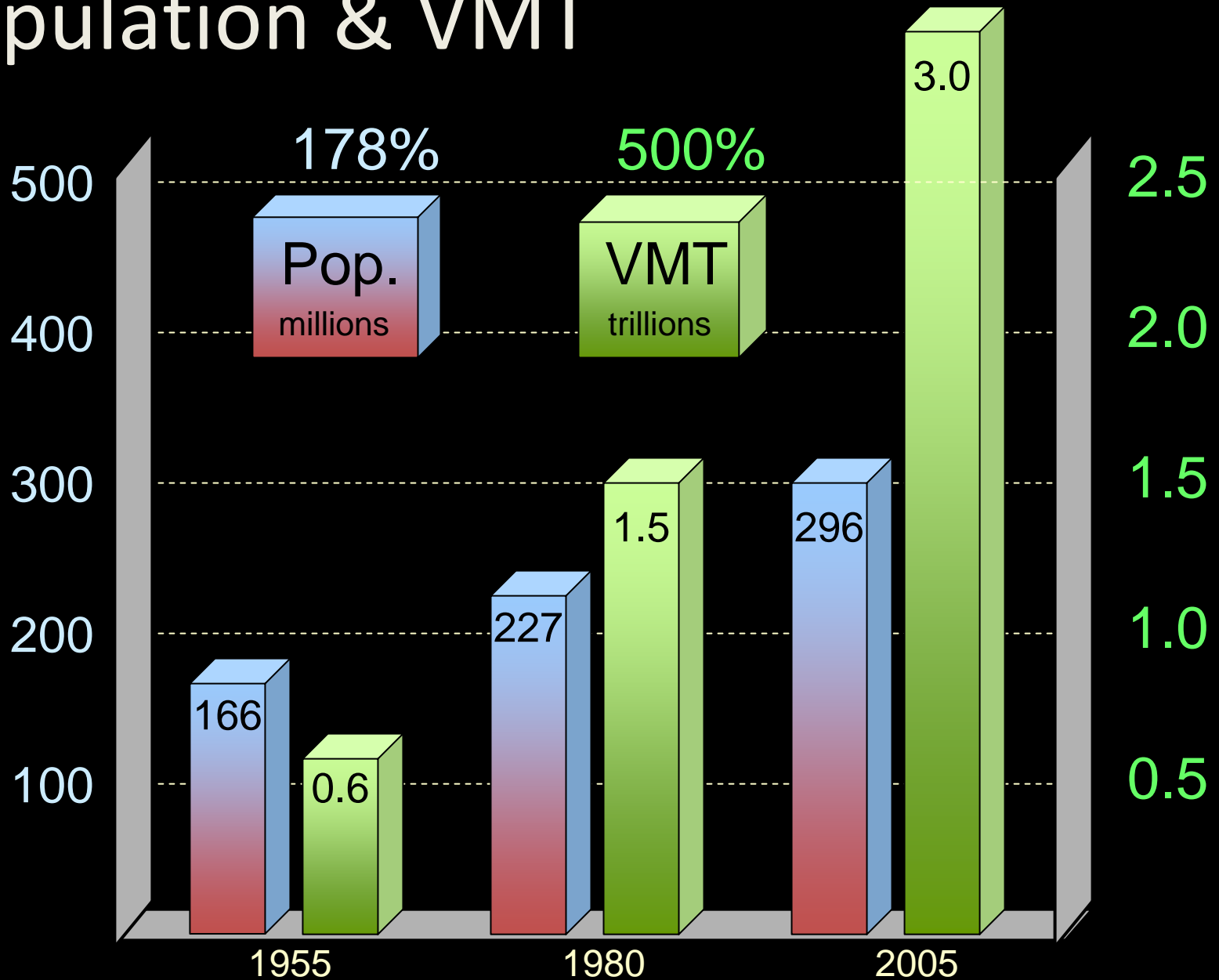
US travel behavior is already changing...



VMT –
Vehicle Miles of
Travel

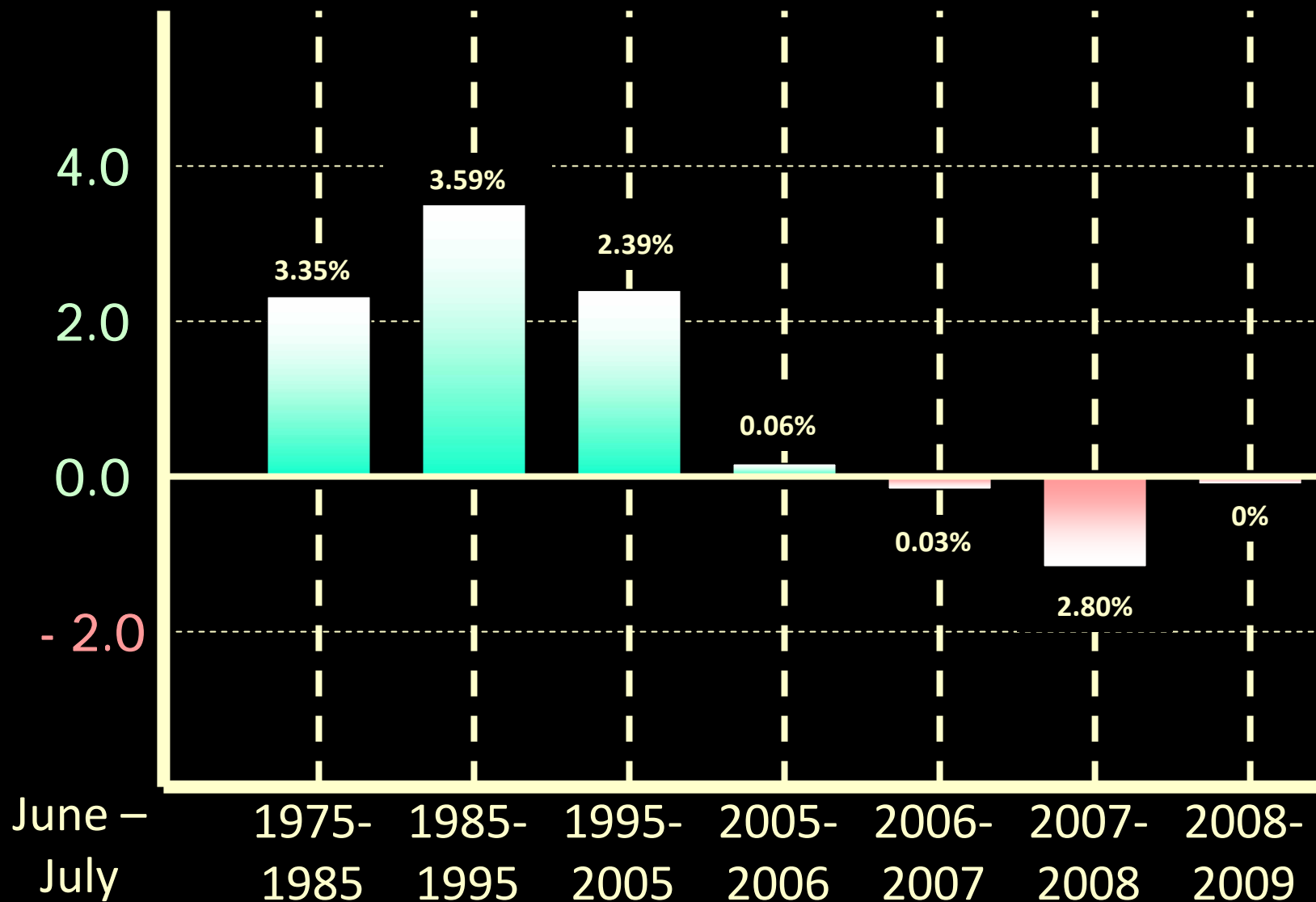
United States

Population & VMT

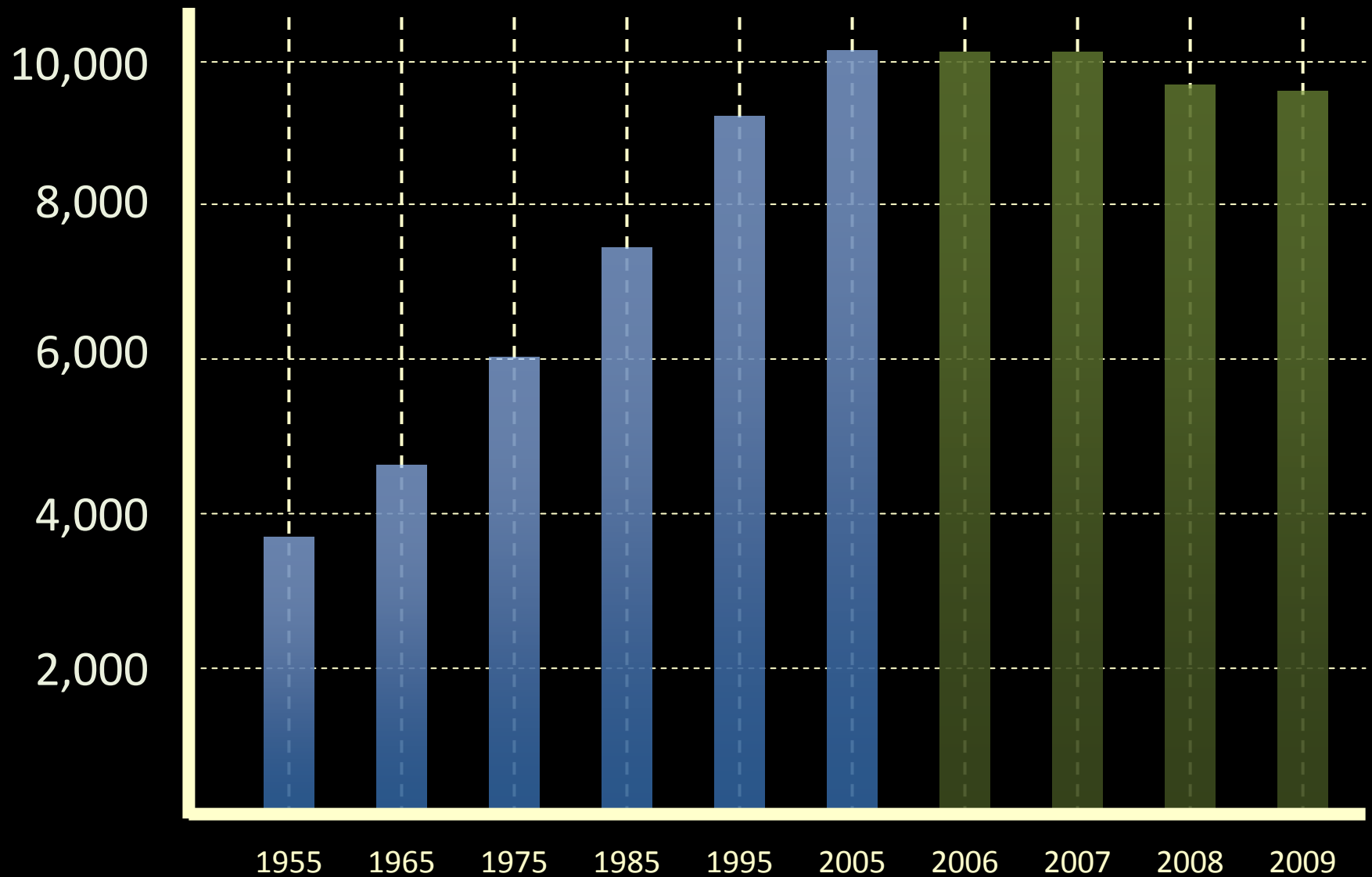


United States

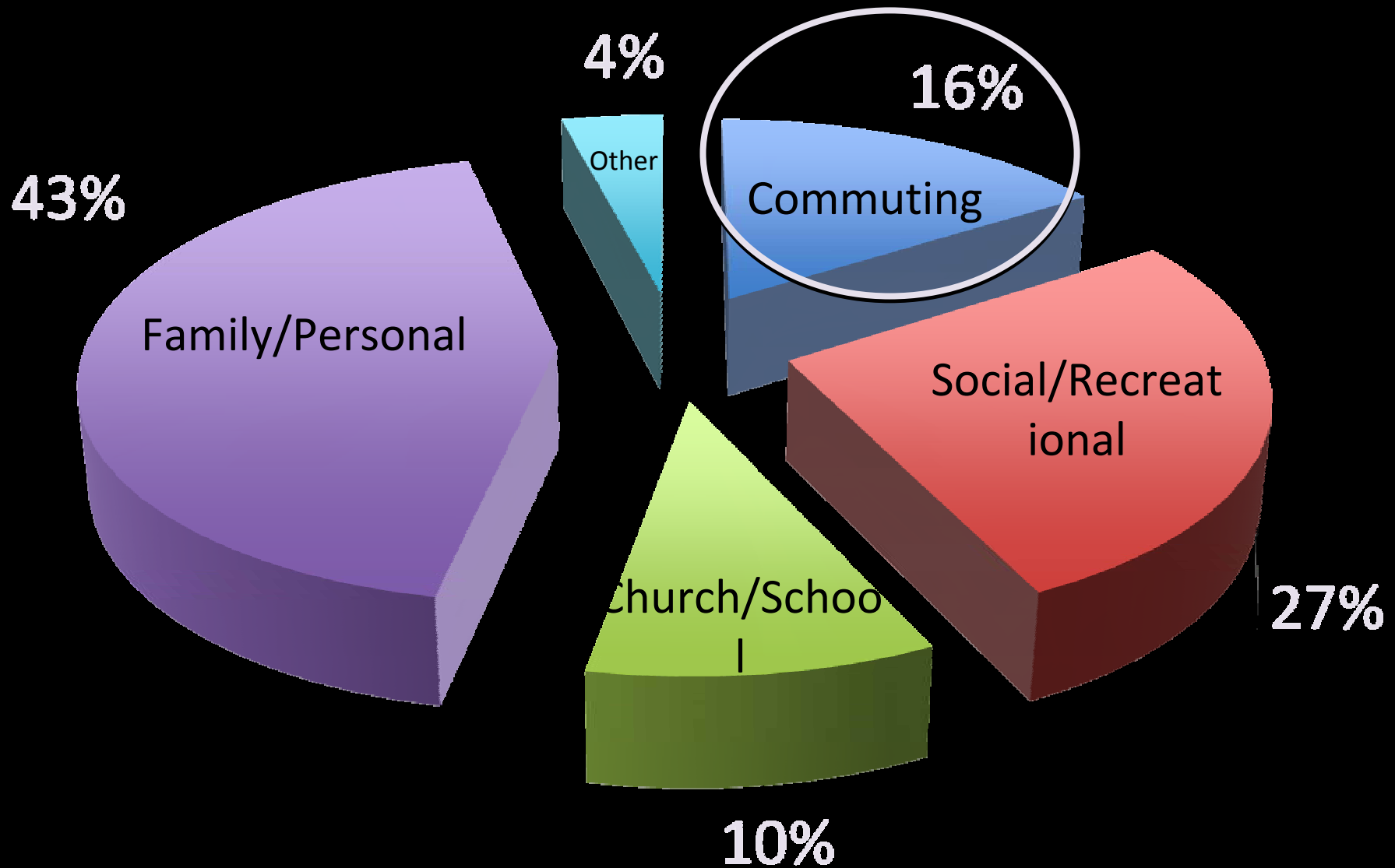
Annual Rate of Change in VMT



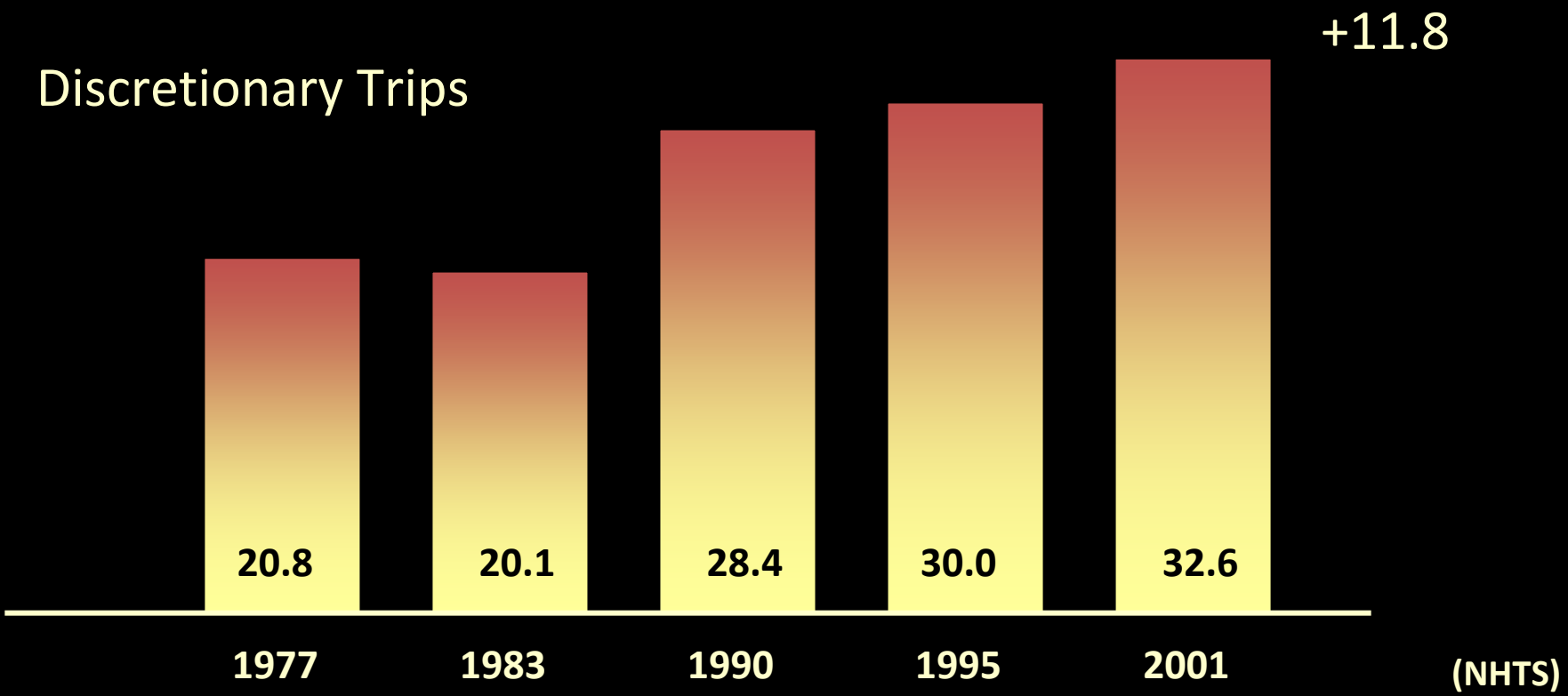
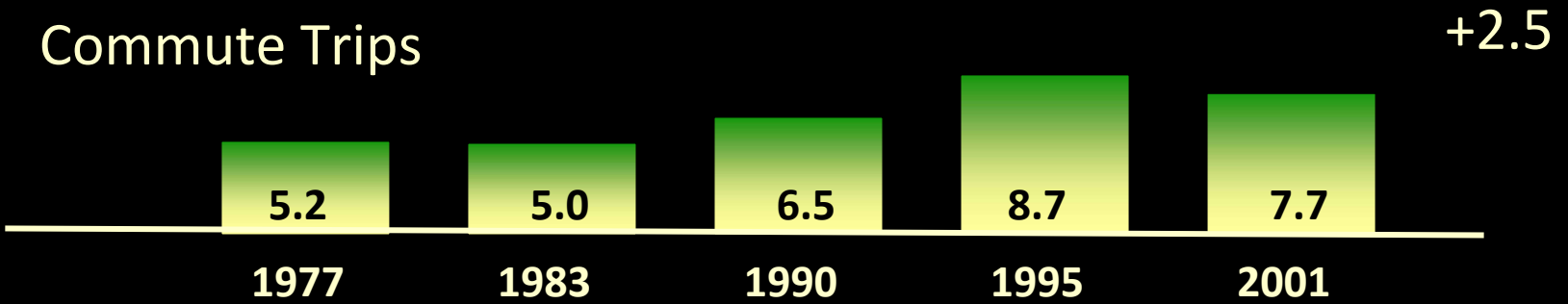
United States VMT per Capita



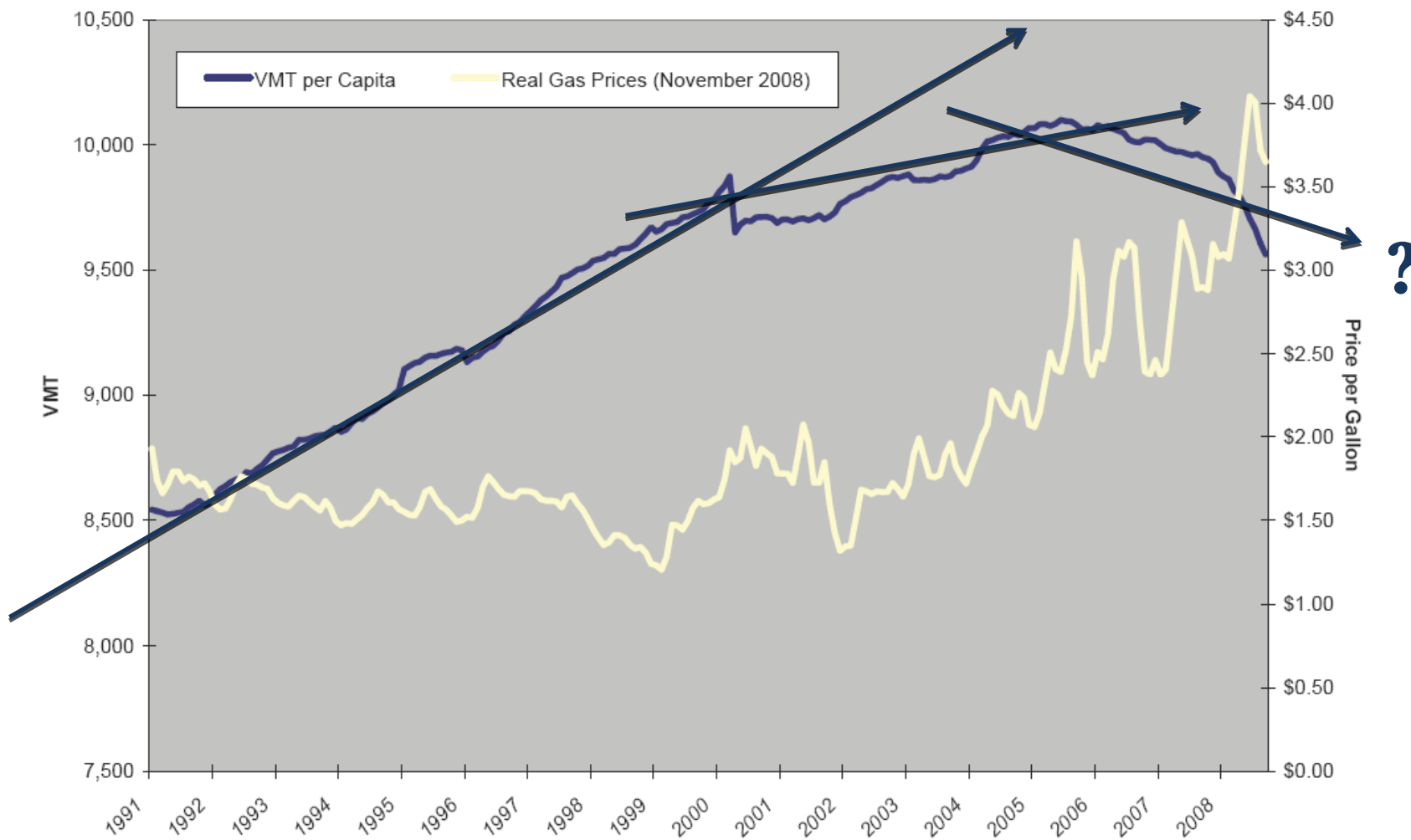
Daily Per Capita Travel



Daily Miles of Travel Per Capita



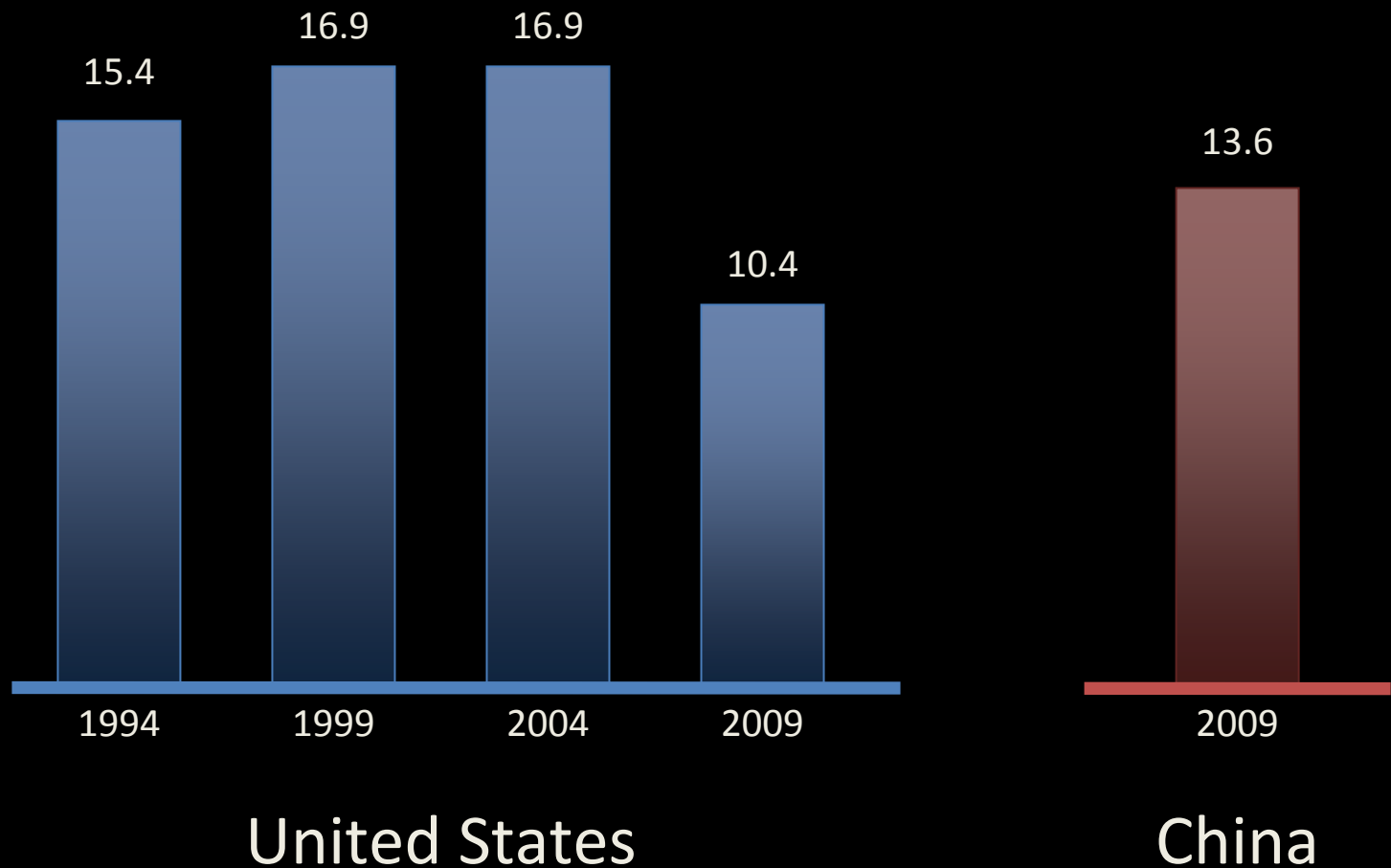
**Figure 1b. U.S. Vehicle Miles Traveled Per Capita, Annualized and Real Gasoline Pump Prices,
January 1991–September 2008**



Source: Traffic Volume Trends and Energy Information Administration

Annual Sales: New Motor Vehicles

Millions



United States

China

BOTTOM LINE:

We are entering the Post Petroleum Era,
ready or not.

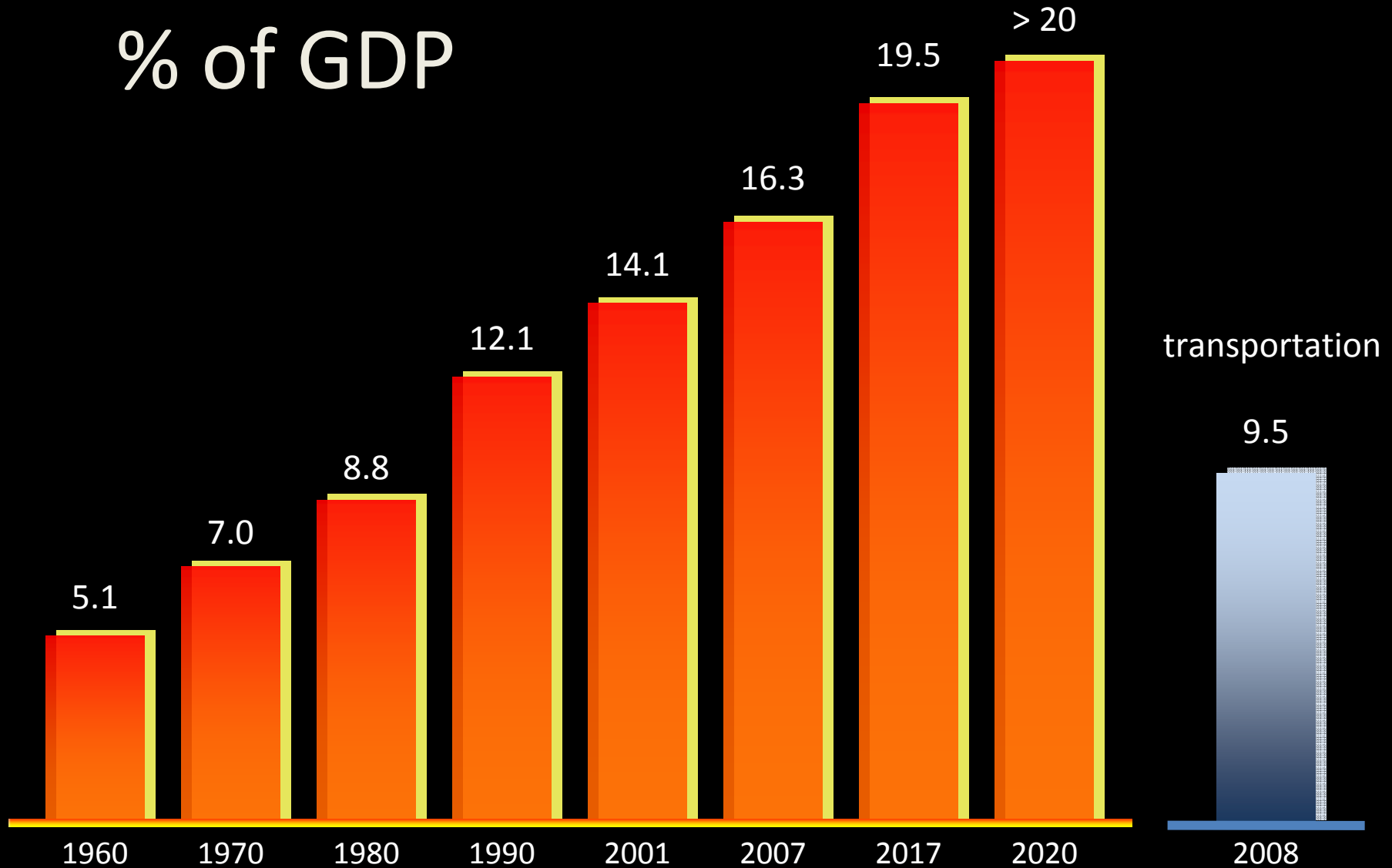


2

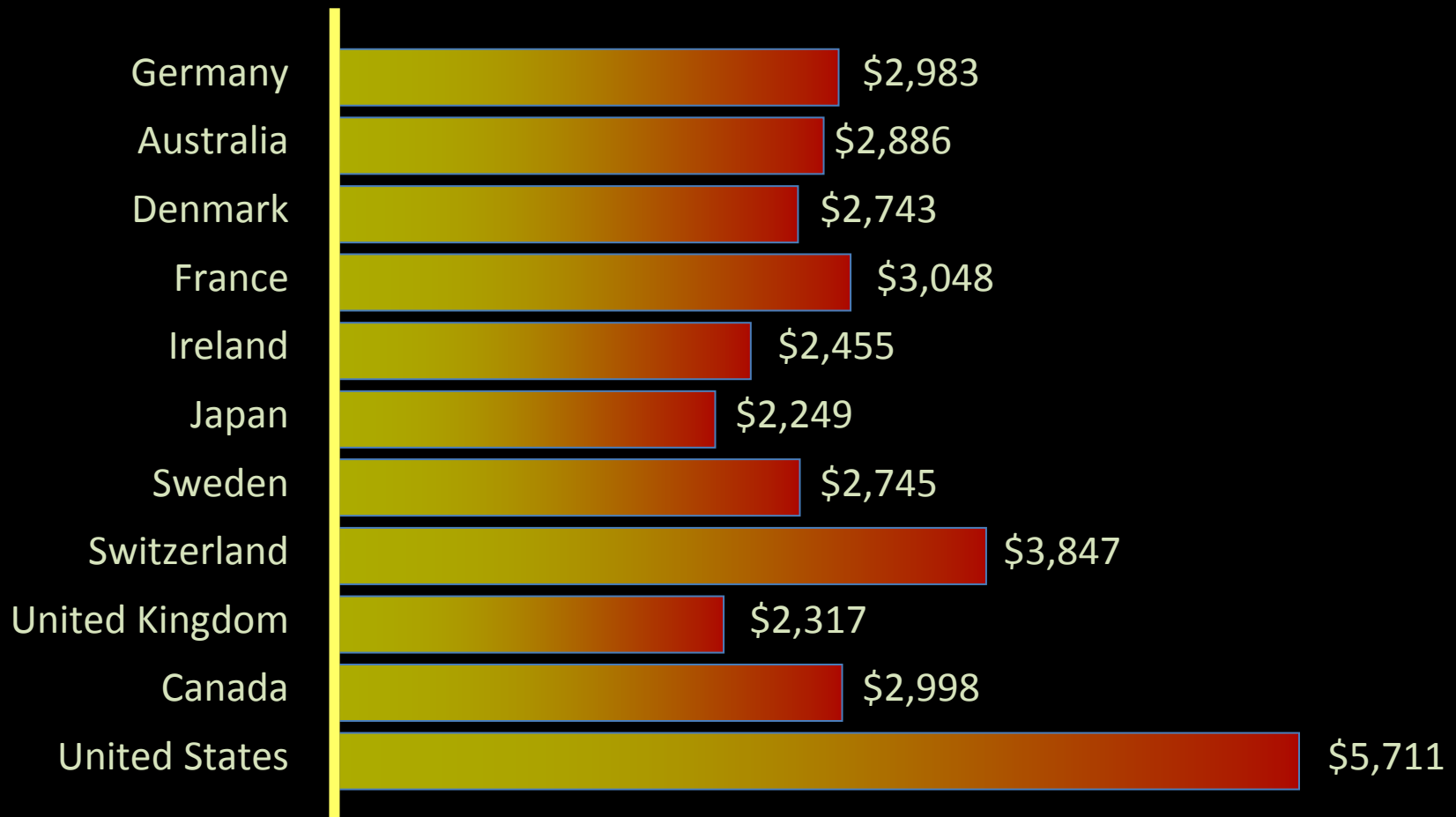


Public
Health

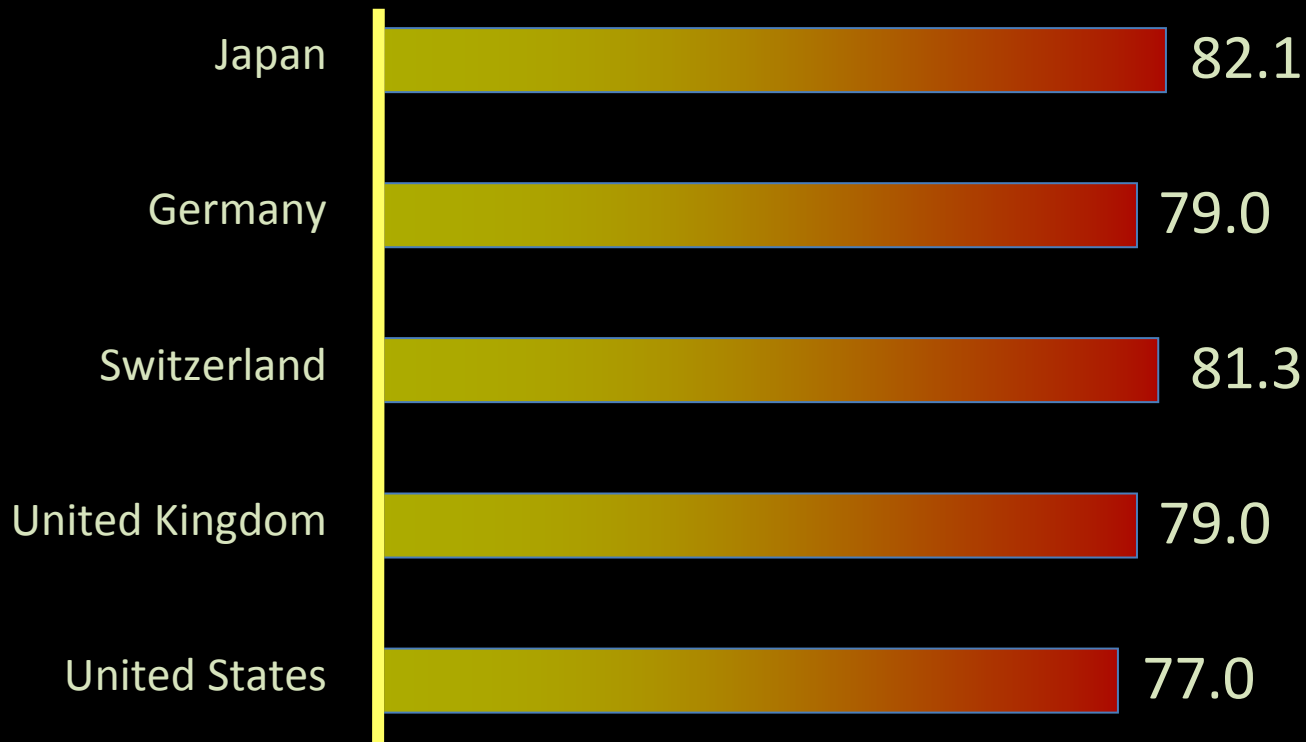
US Health Care % of GDP



Annual Health Care Costs/Capita

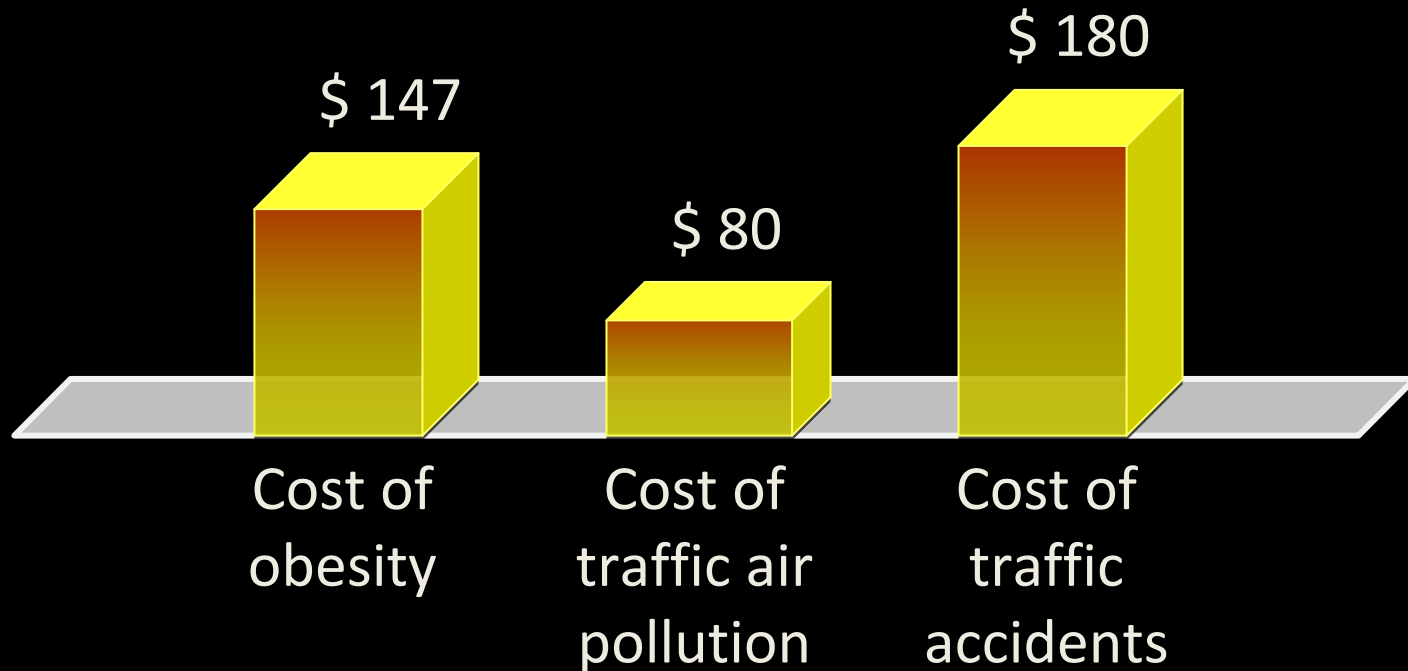


Average Life Expectancy



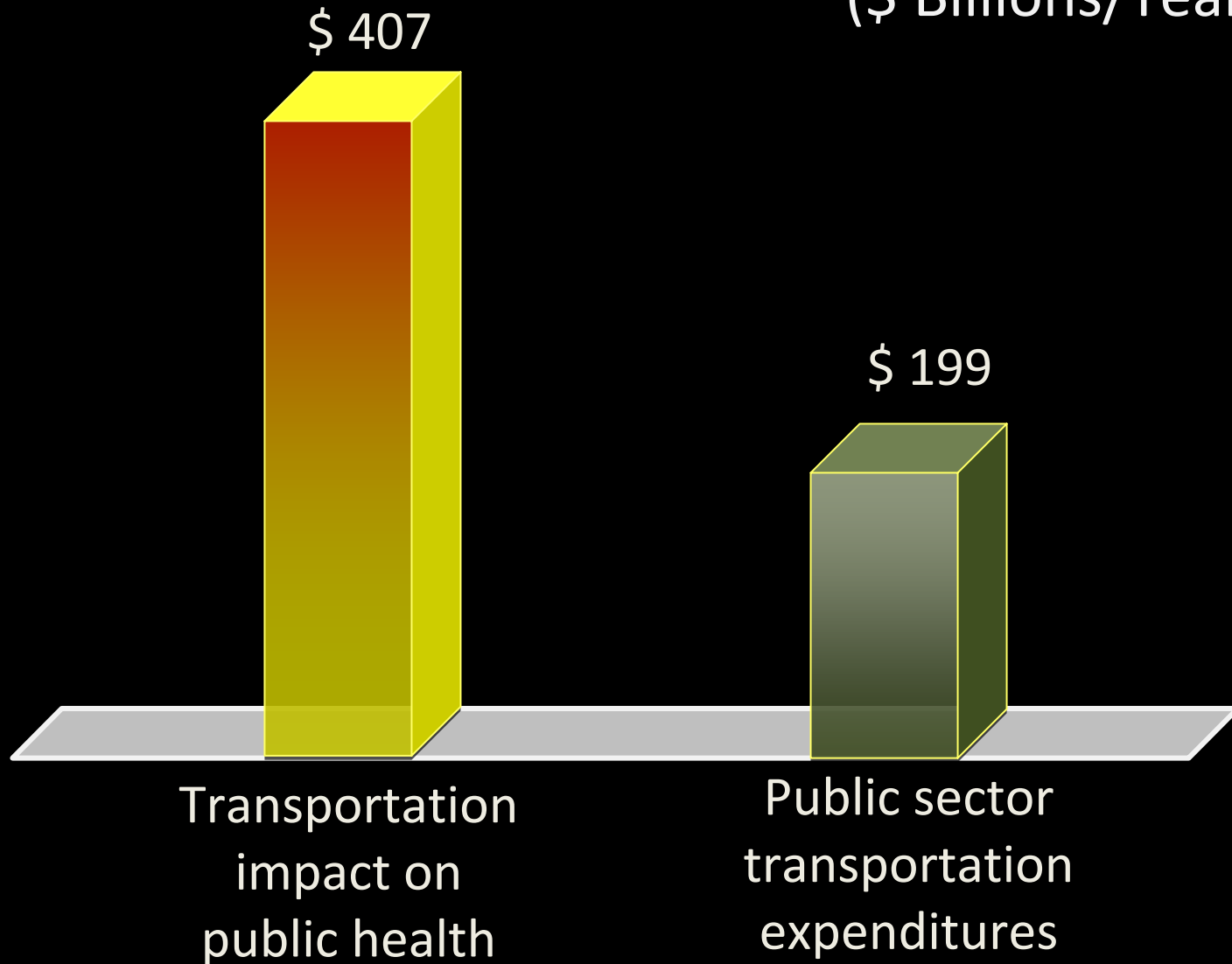
Scale – United States Economy

(\$ Billions/Year)



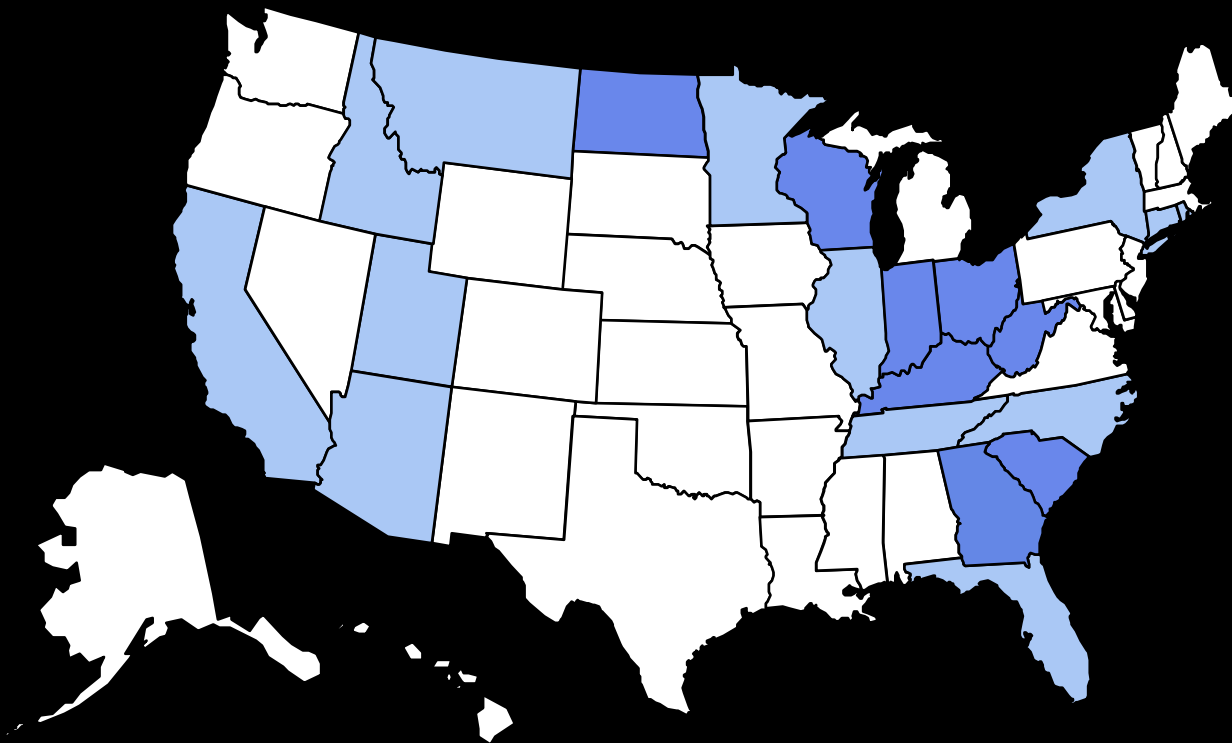
Scale – United States Economy

(\$ Billions/Year)



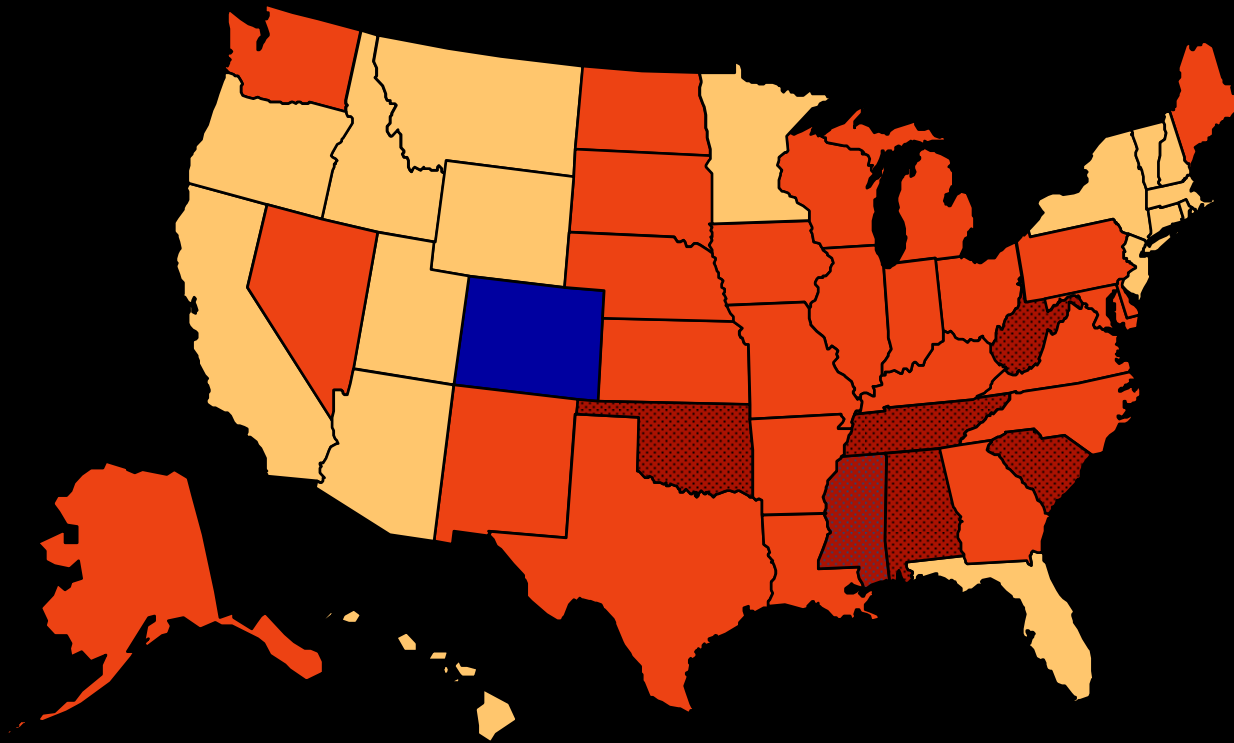
1985

Obesity Trends Among U.S. Adults



No Data
 <10%
 10%–14%

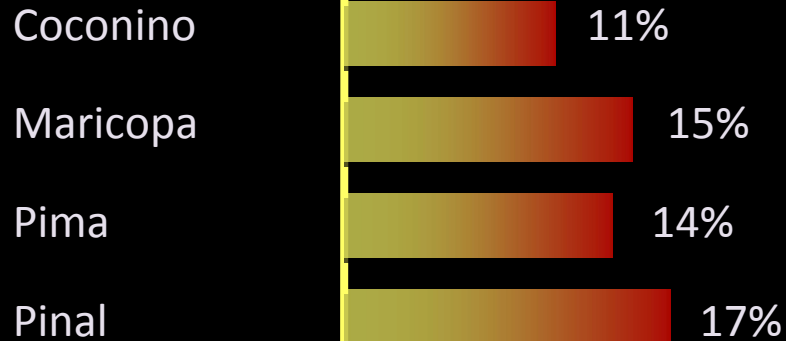
2008



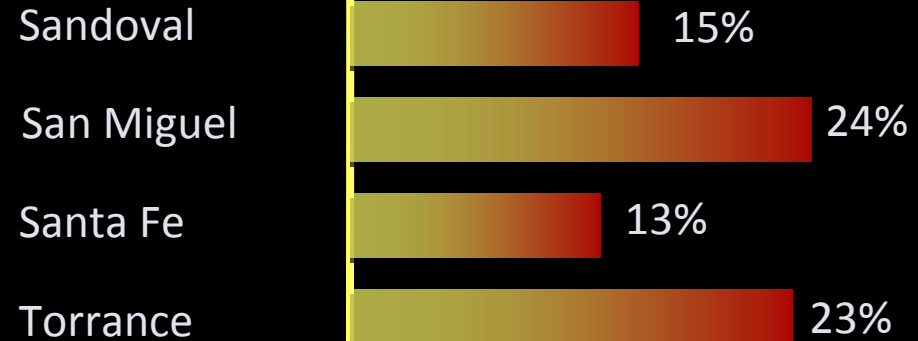
No Data <10% 10%–14% 15%–19% 20%–24% 25%–29% ≥30%

Health Indicators – Poor or Fair Health

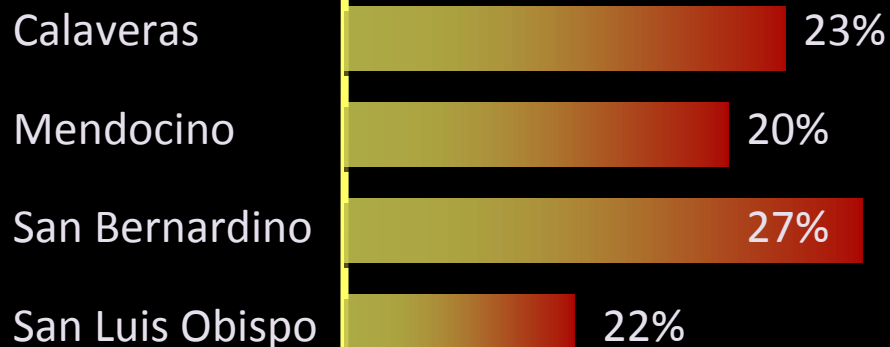
ARIZONA



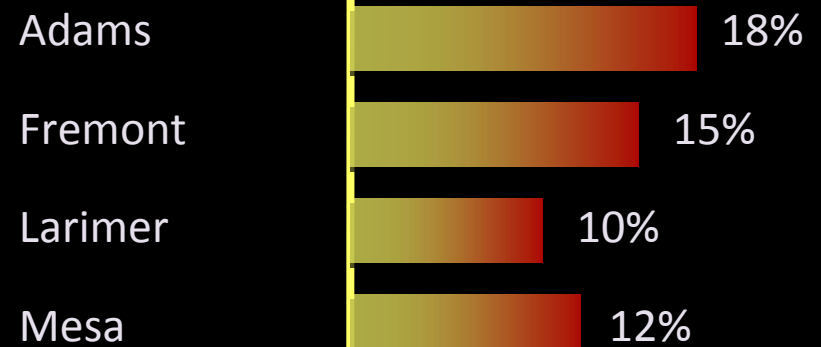
NEW MEXICO



CALIFORNIA



COLORADO



Transportation & Public Health

Traffic Safety + Personal Health



BOTTOM LINE:

Public health is a huge factor in our economy and is directly affected by our transportation choices.

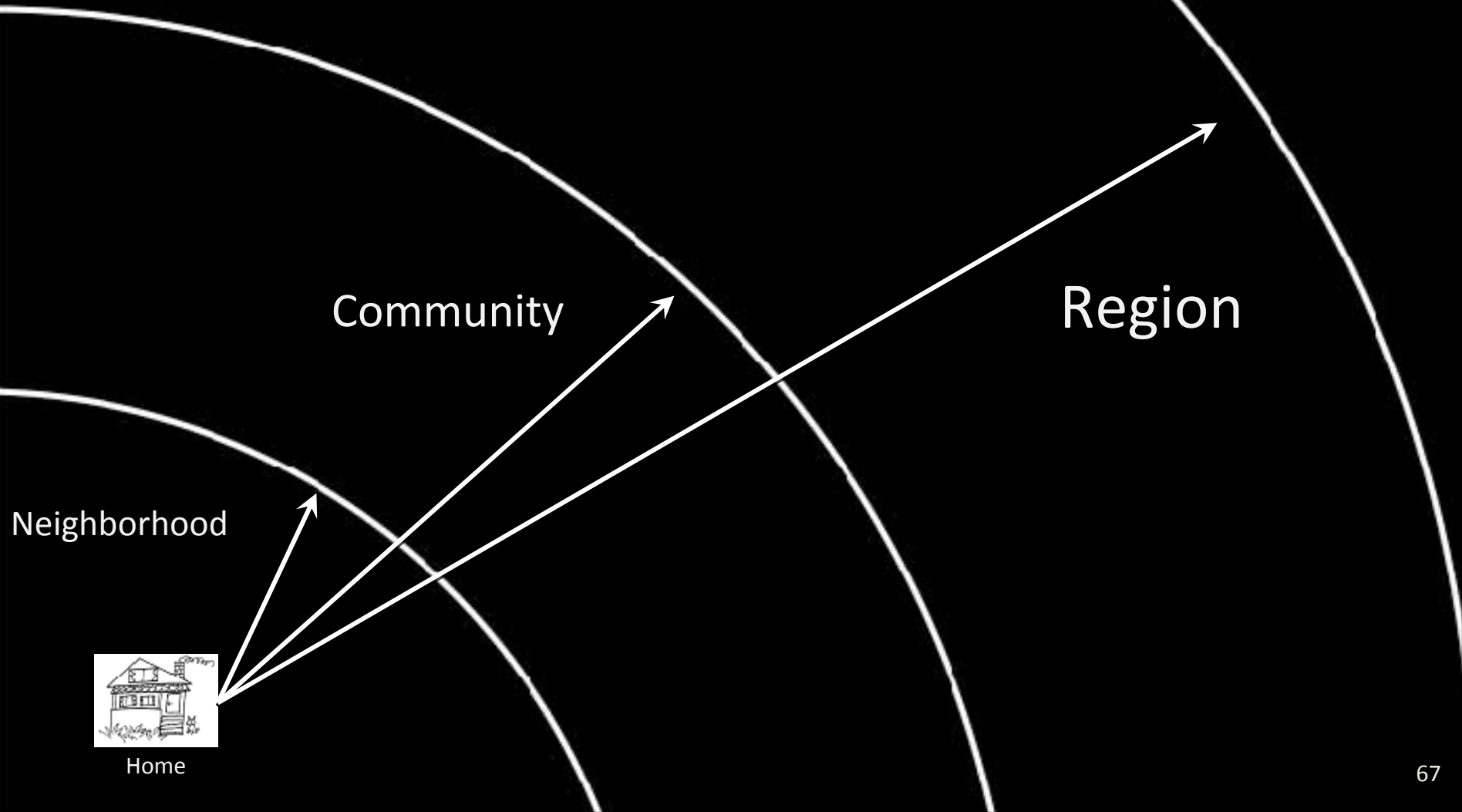


3



Land Use Economics

Spatial Relationships

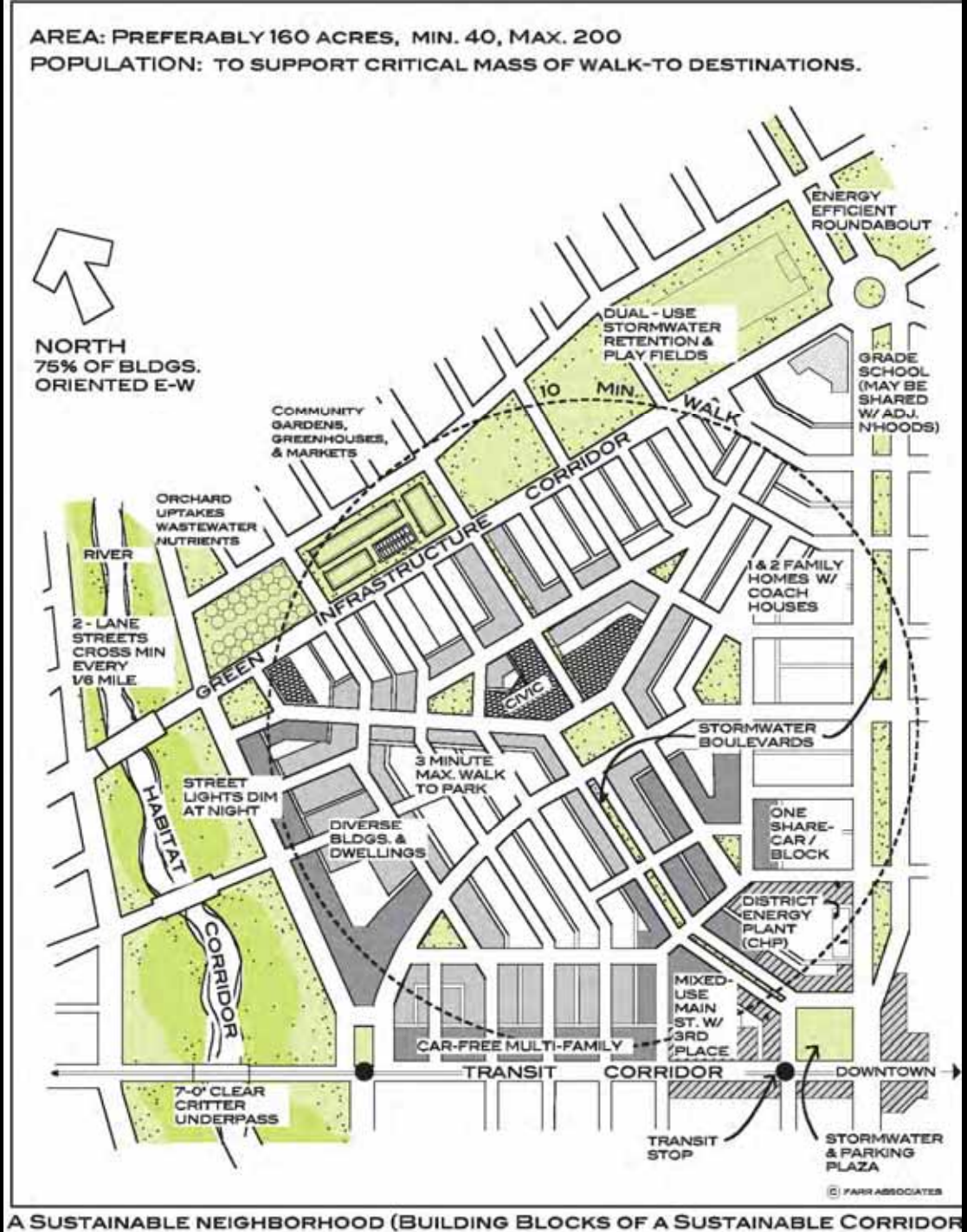


“Location Efficiency” =

Complete Neighborhoods + Regional Access

the neighborhood

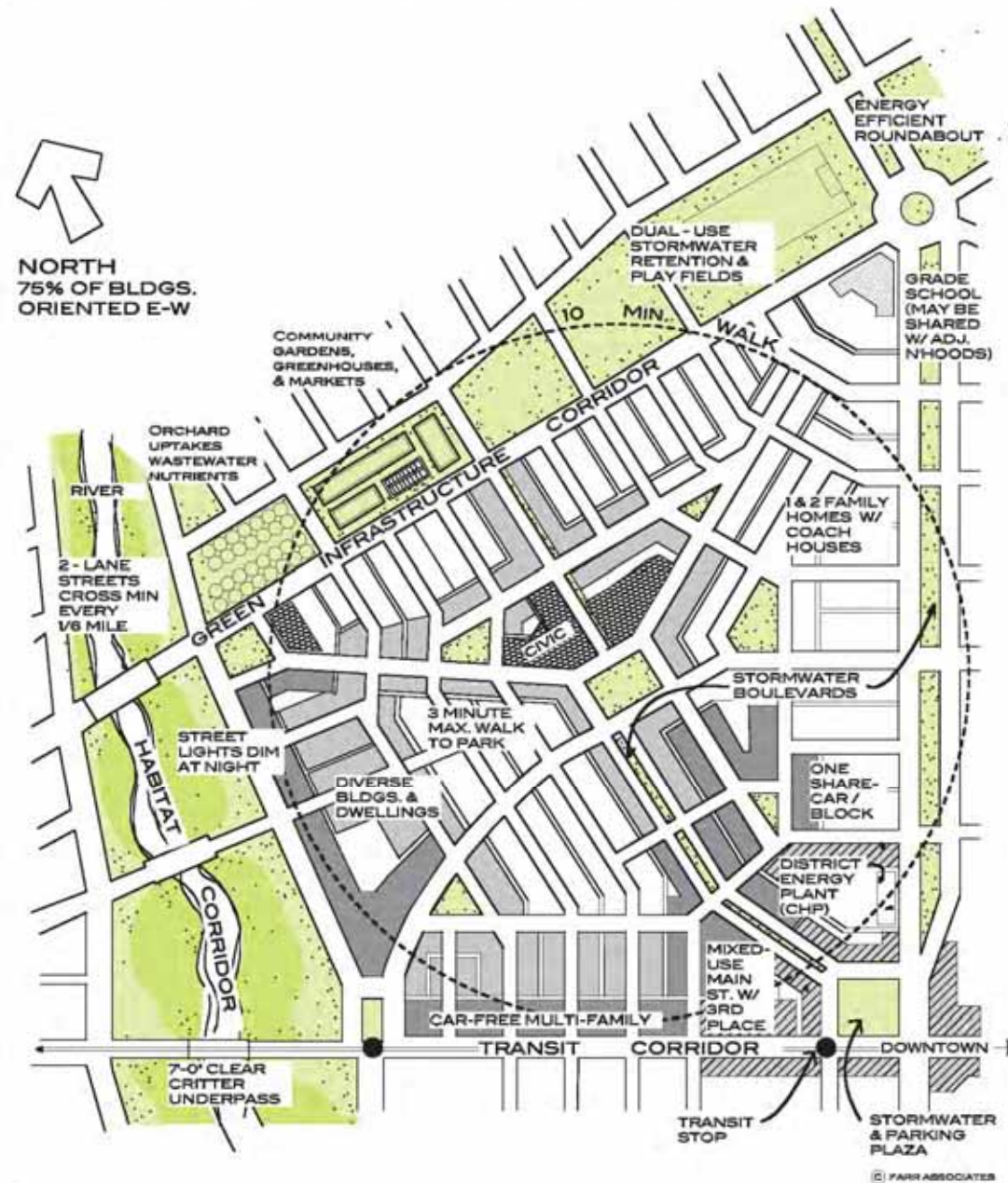
- ¼ mile radius
- 160 – 200 acres



the complete neighborhood

- schools
- local retail
- services
- parks
- diverse housing
- transit

AREA: PREFERABLY 160 ACRES, MIN. 40, MAX. 200
POPULATION: TO SUPPORT CRITICAL MASS OF WALK-TO DESTINATIONS.

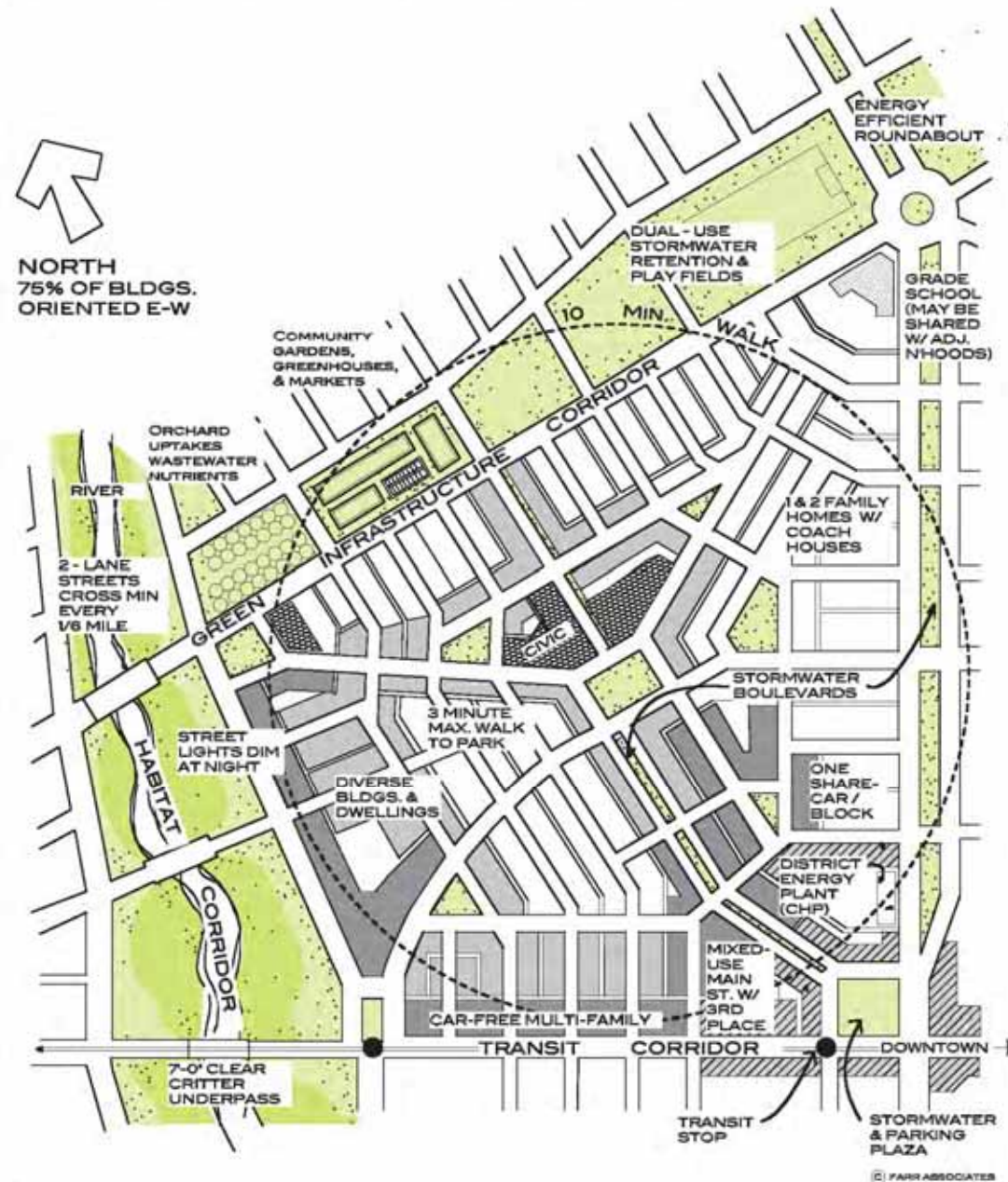


A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR)

the complete neighborhood

- walkable
- mixed-use
- transit-served

AREA: PREFERABLY 160 ACRES, MIN. 40, MAX. 200
POPULATION: TO SUPPORT CRITICAL MASS OF WALK-TO DESTINATIONS.



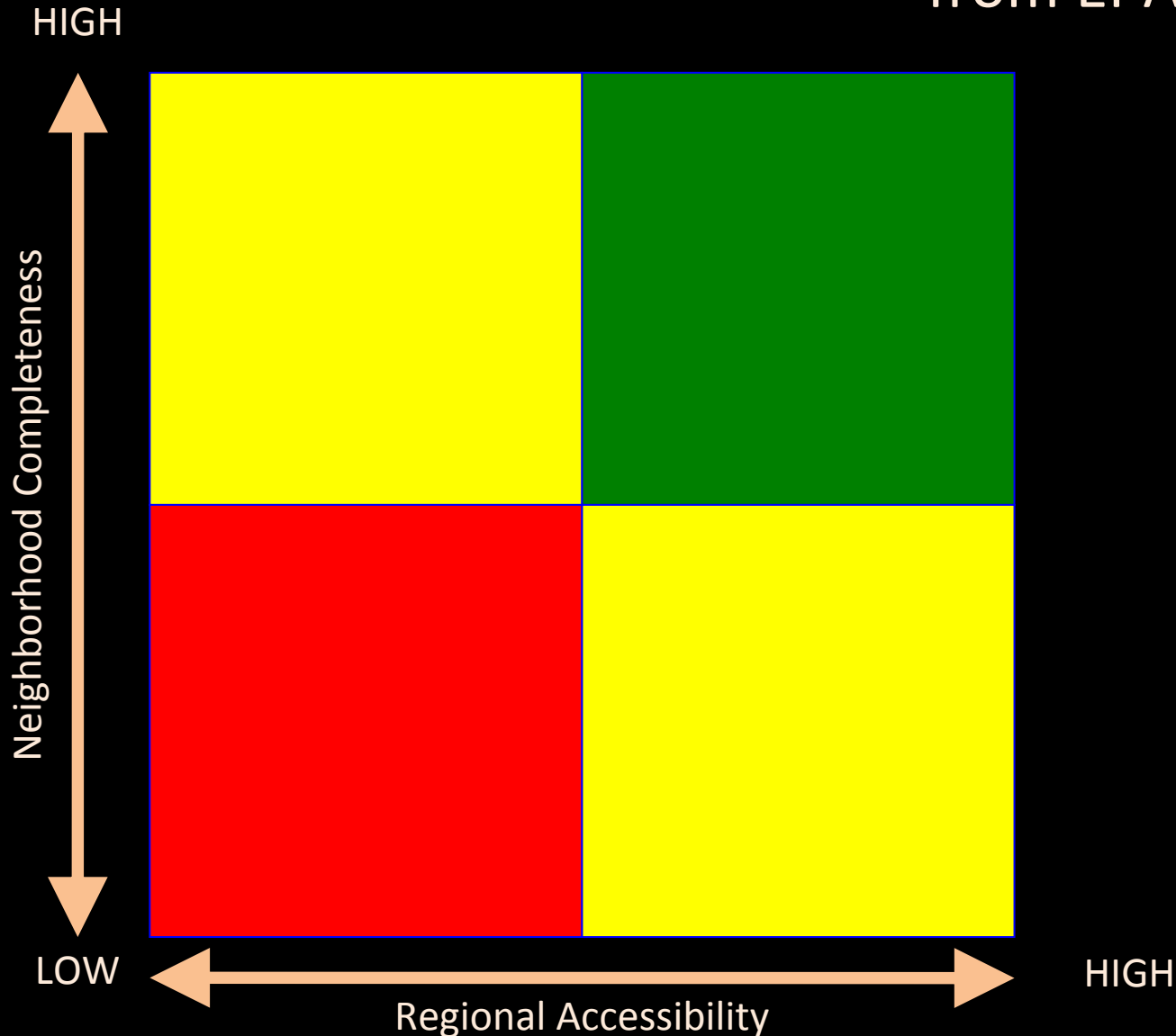
A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR)

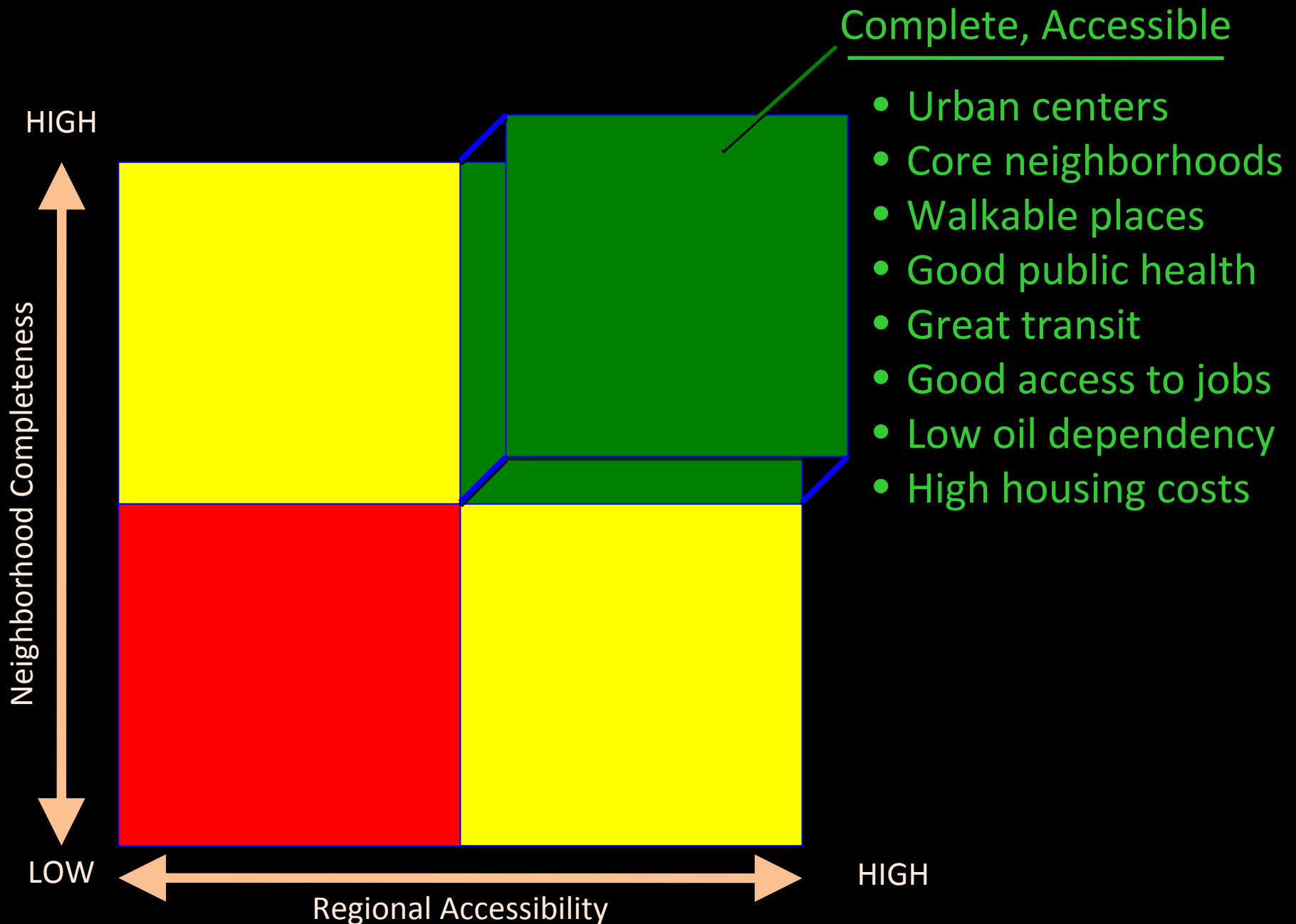
Regional Accessibility

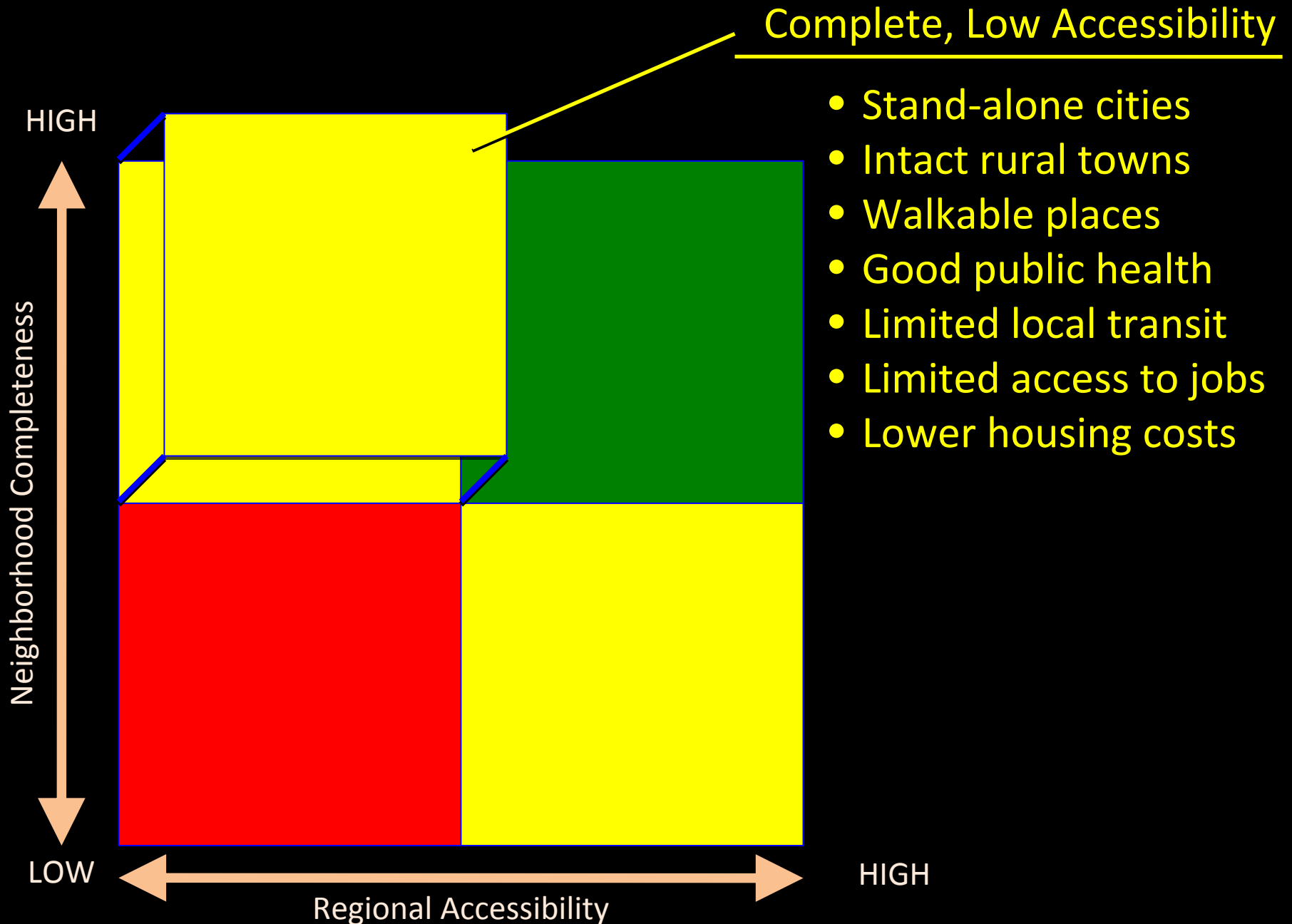


Place Types

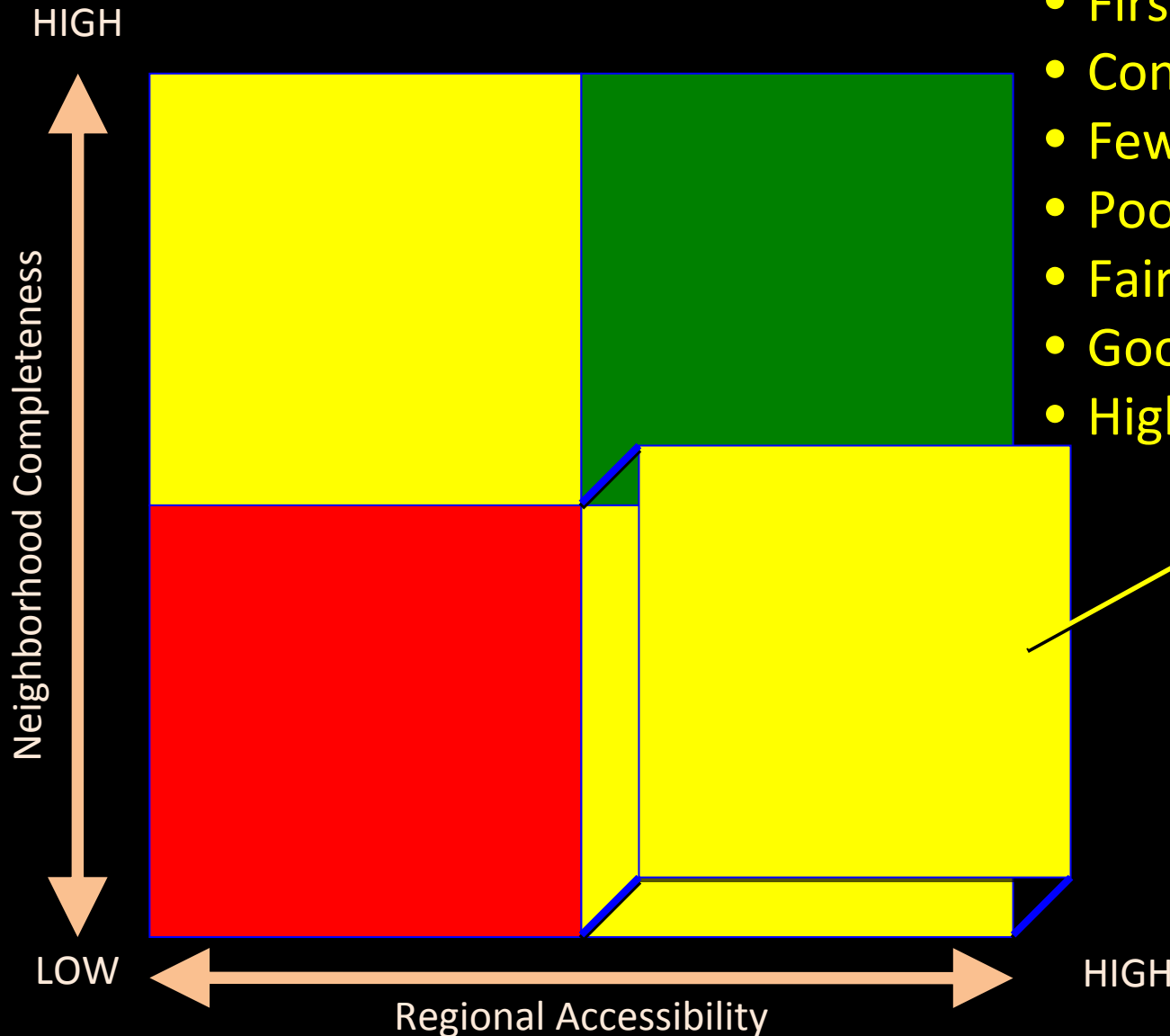
* from EPA/Caltrans work



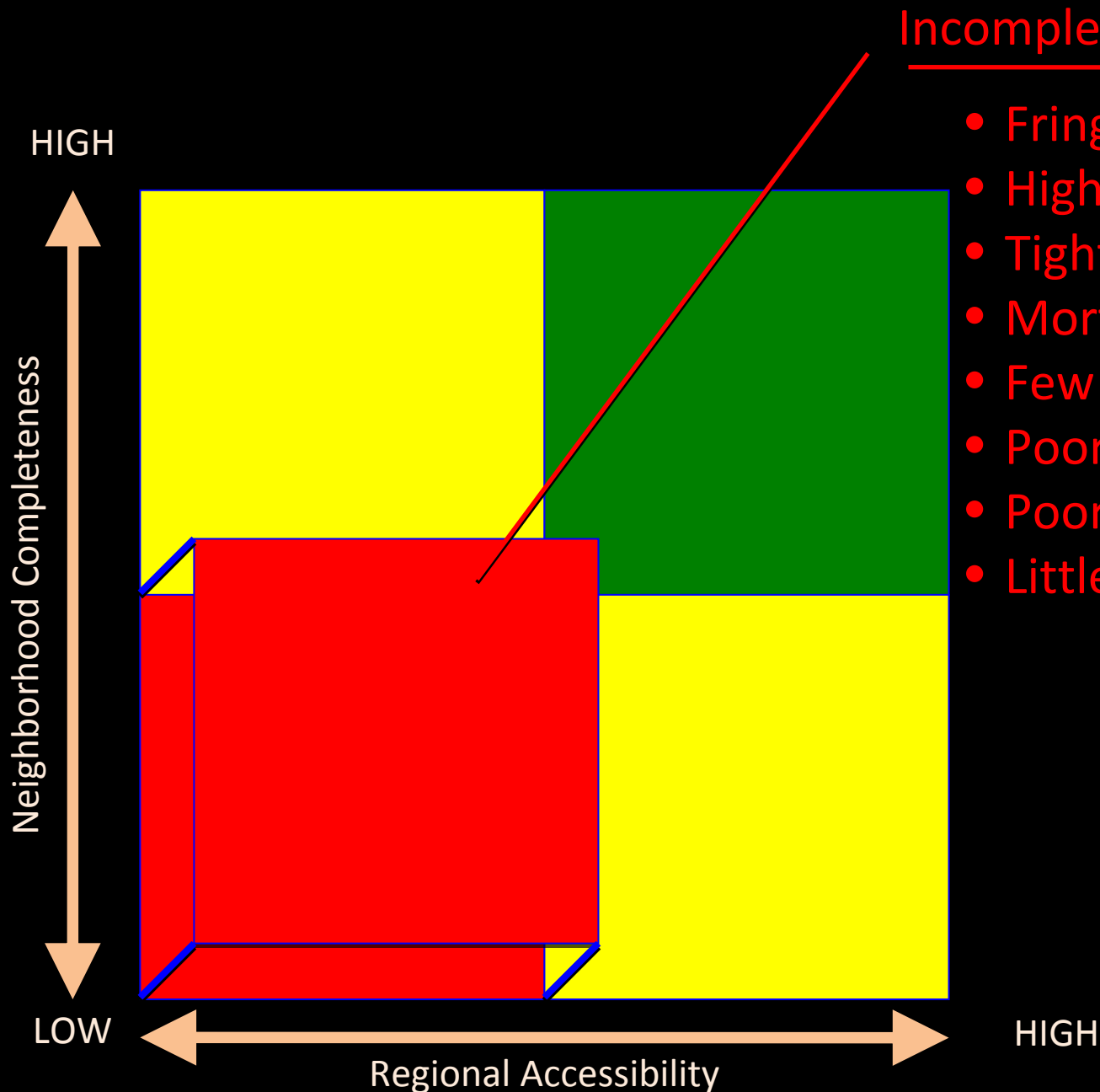




Incomplete, Accessible



- First tier suburbs
- Connected sprawl
- Few walkable places
- Poor public health
- Fair to good transit
- Good access to jobs
- Higher housing costs



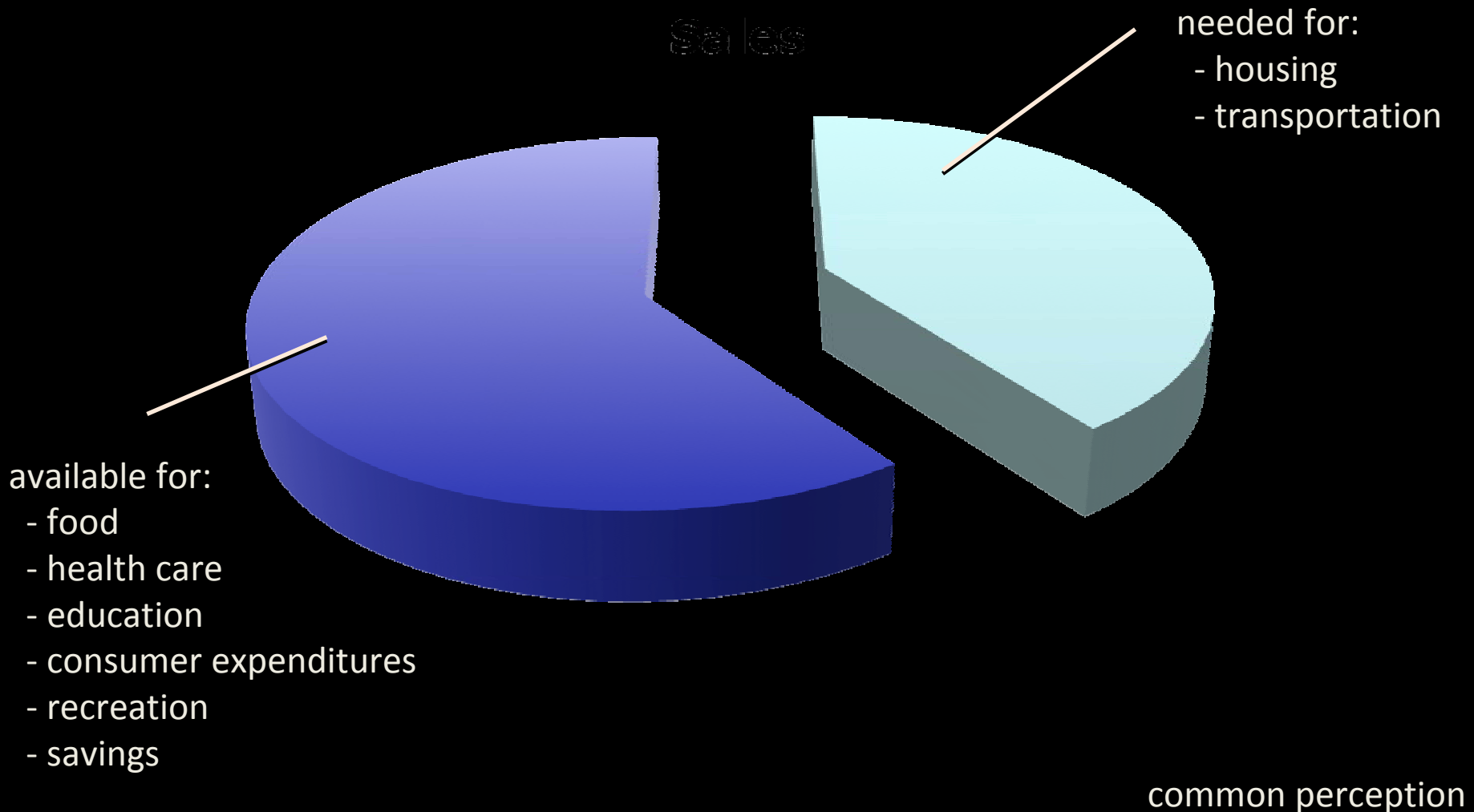
Incomplete, Low Accessibility

- Fringe & exurban sprawl
- High oil dependency
- Tight household budgets
- Mortgage foreclosures
- Few walkable places
- Poor public health
- Poor access to jobs
- Little or no transit

Location Efficiency Outcomes

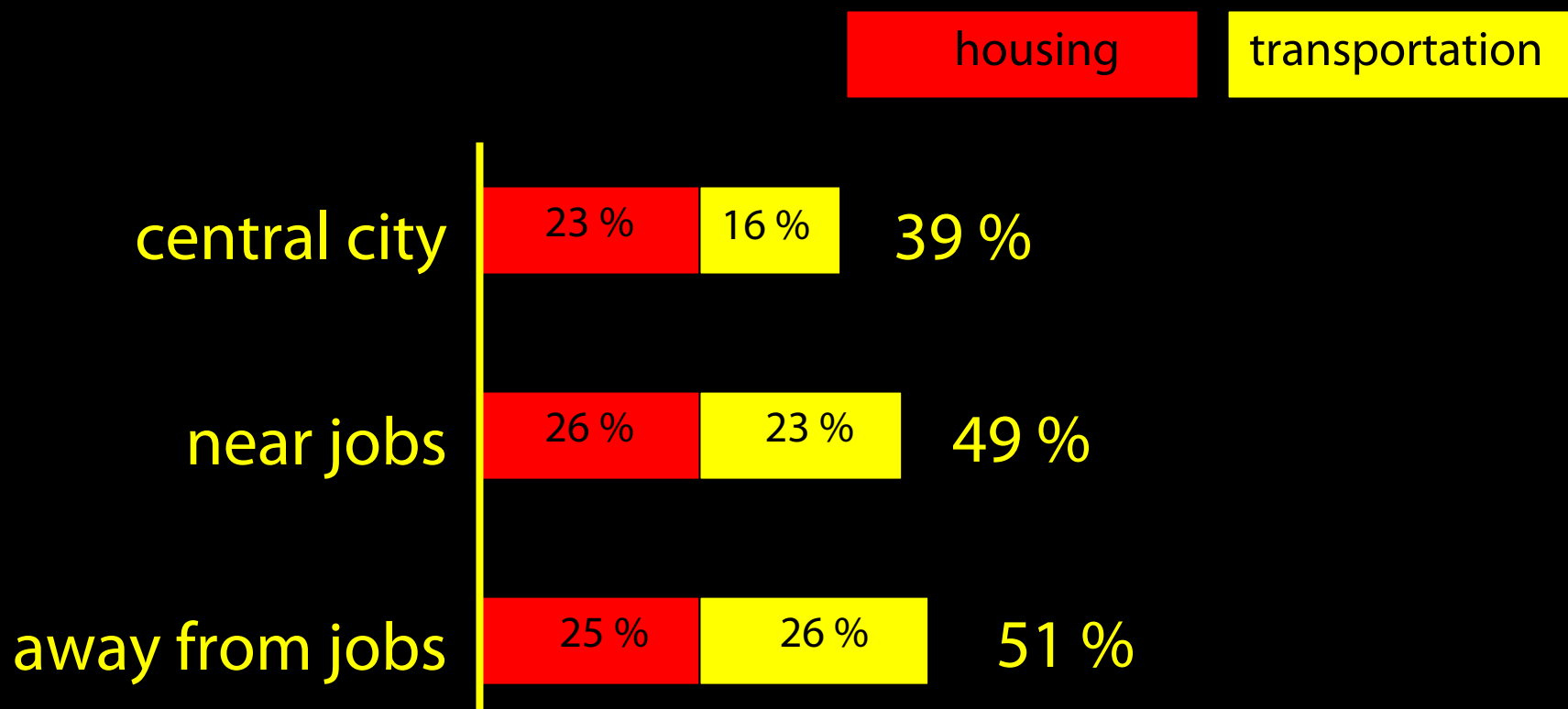
- VMT per capita
- Access to daily household needs
- Walkability, active living
- Household transportation costs
- Business transportation costs
- Economic viability
- Access to jobs & opportunities

household economics



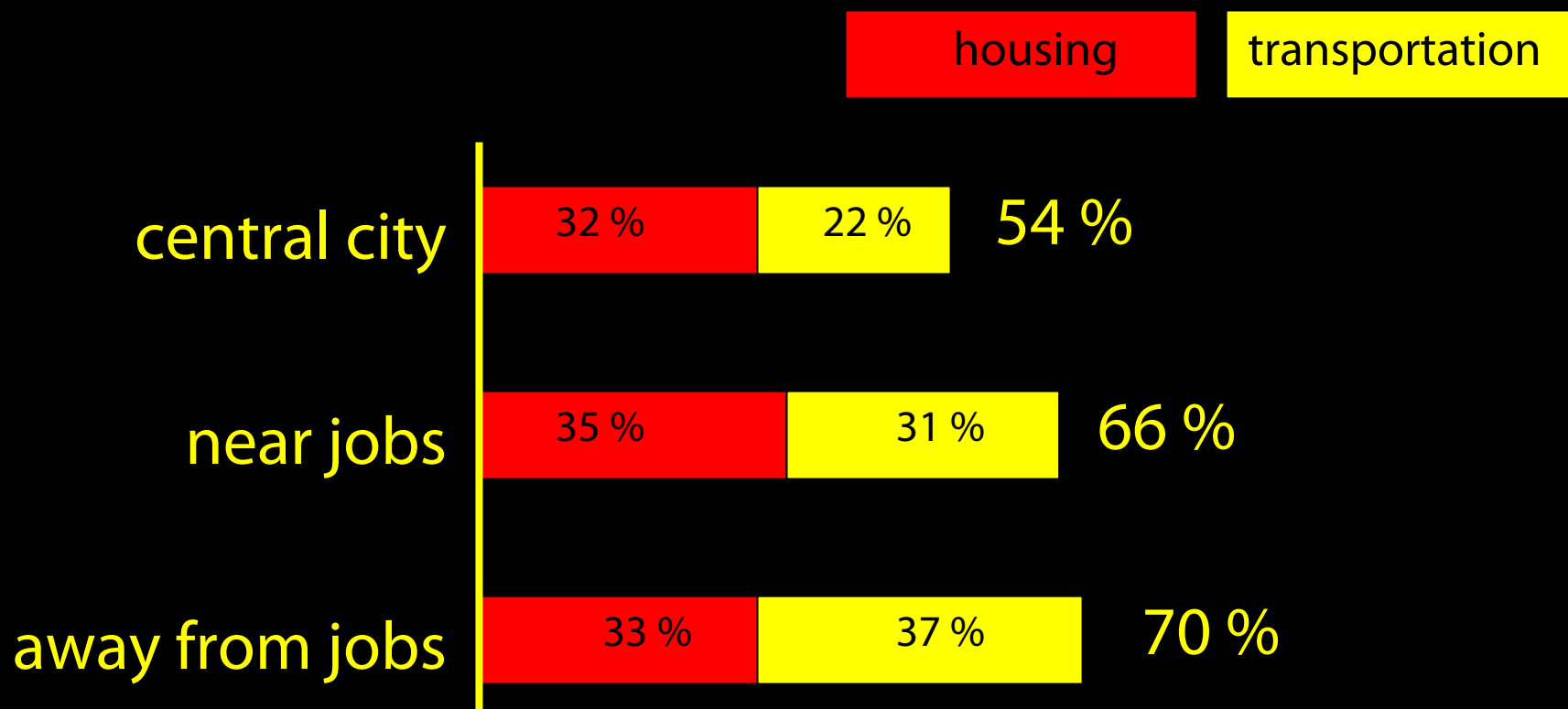
share of family income spent on housing & transportation

family income = \$35,000 - \$50,000

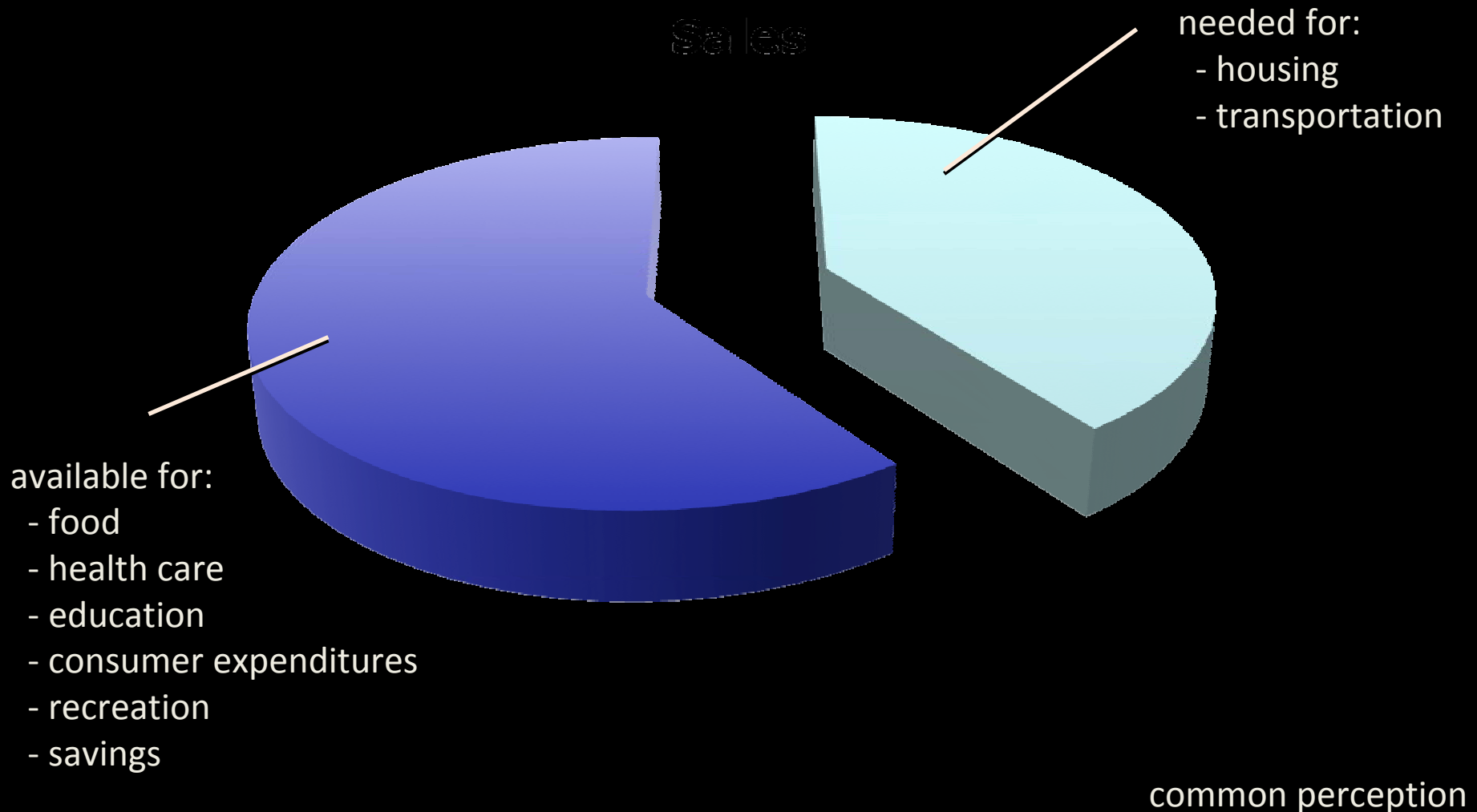


share of family income spent on housing & transportation

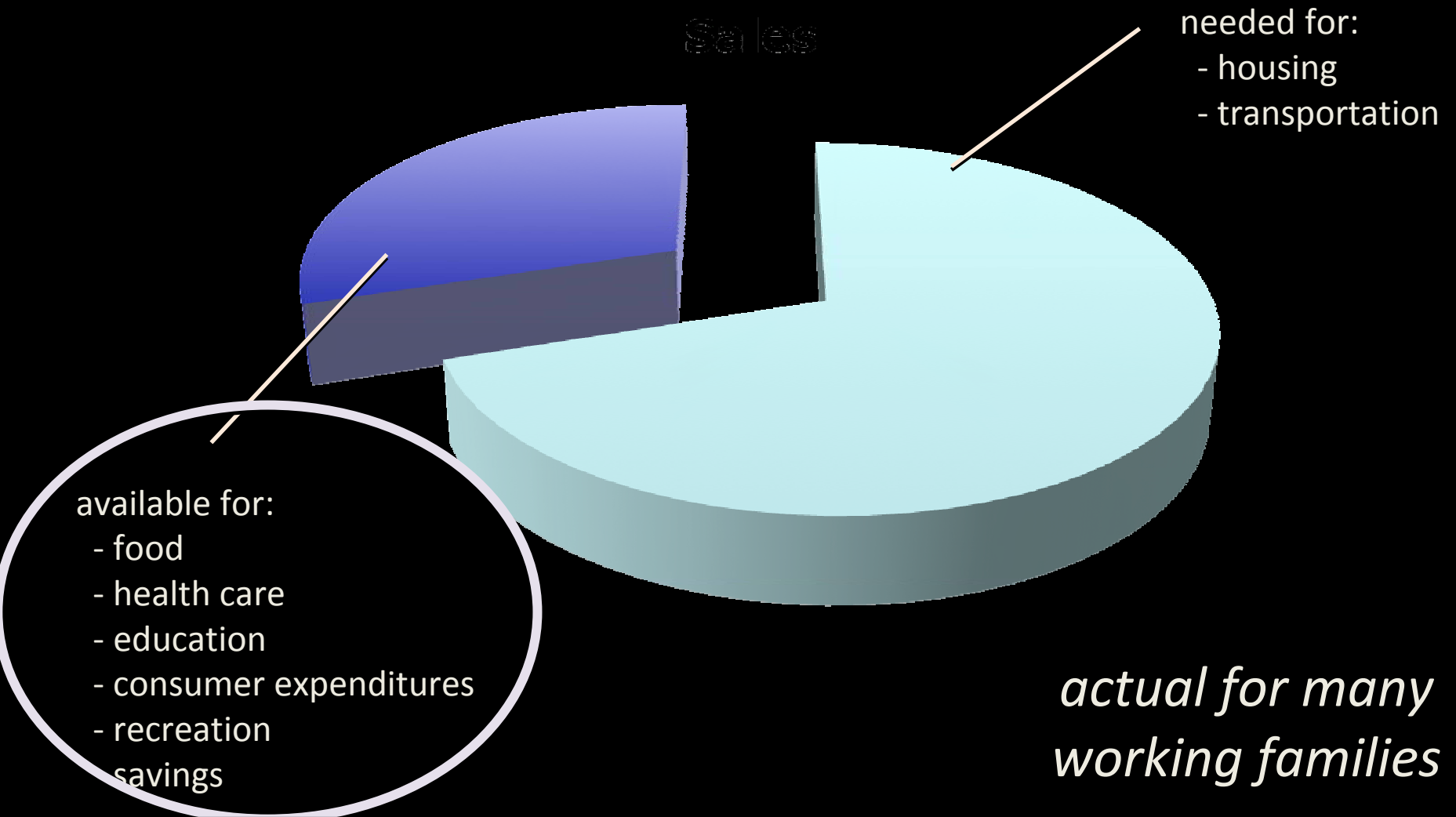
family income = \$20,000 - \$35,000



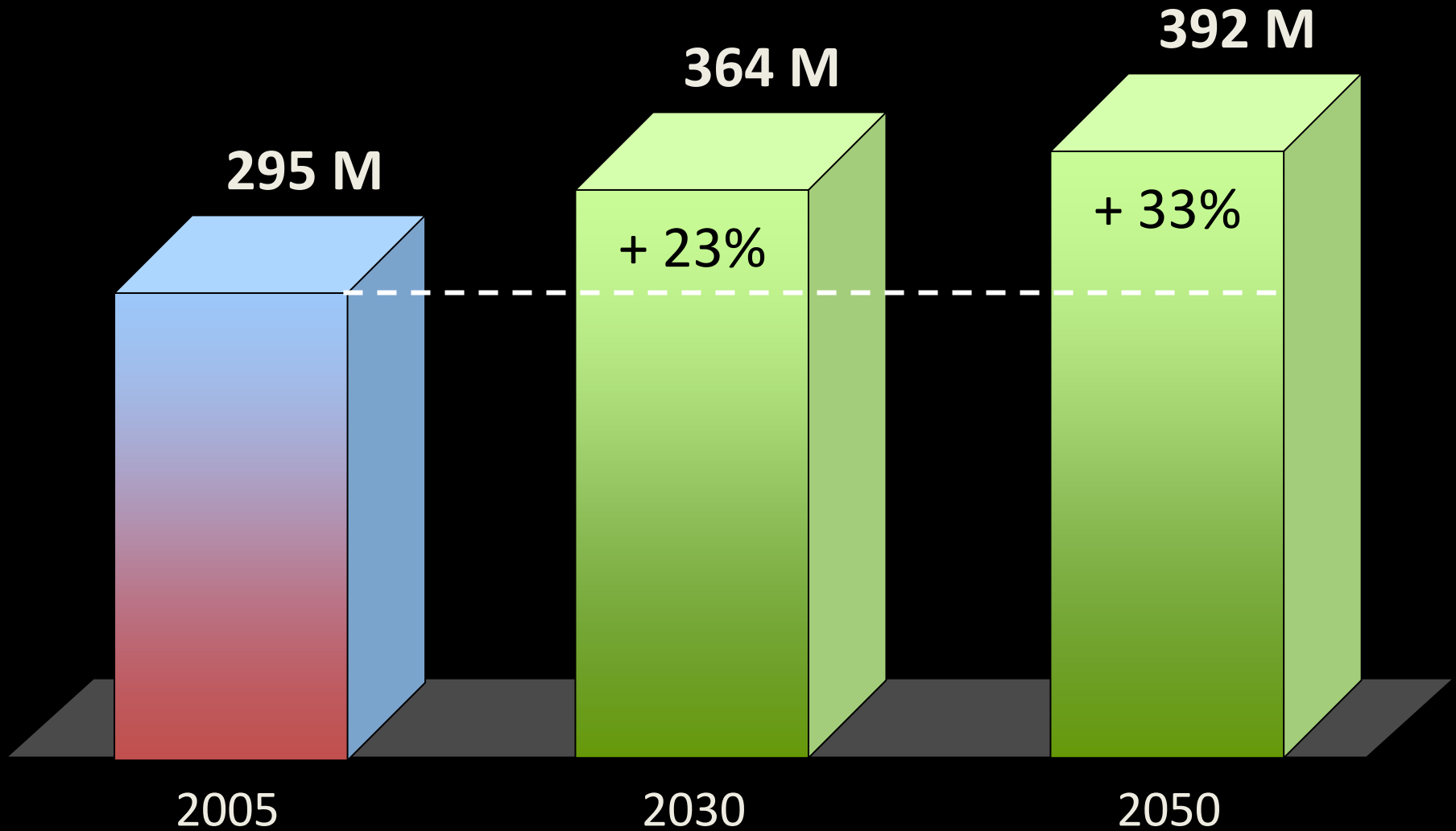
household economics



household economics

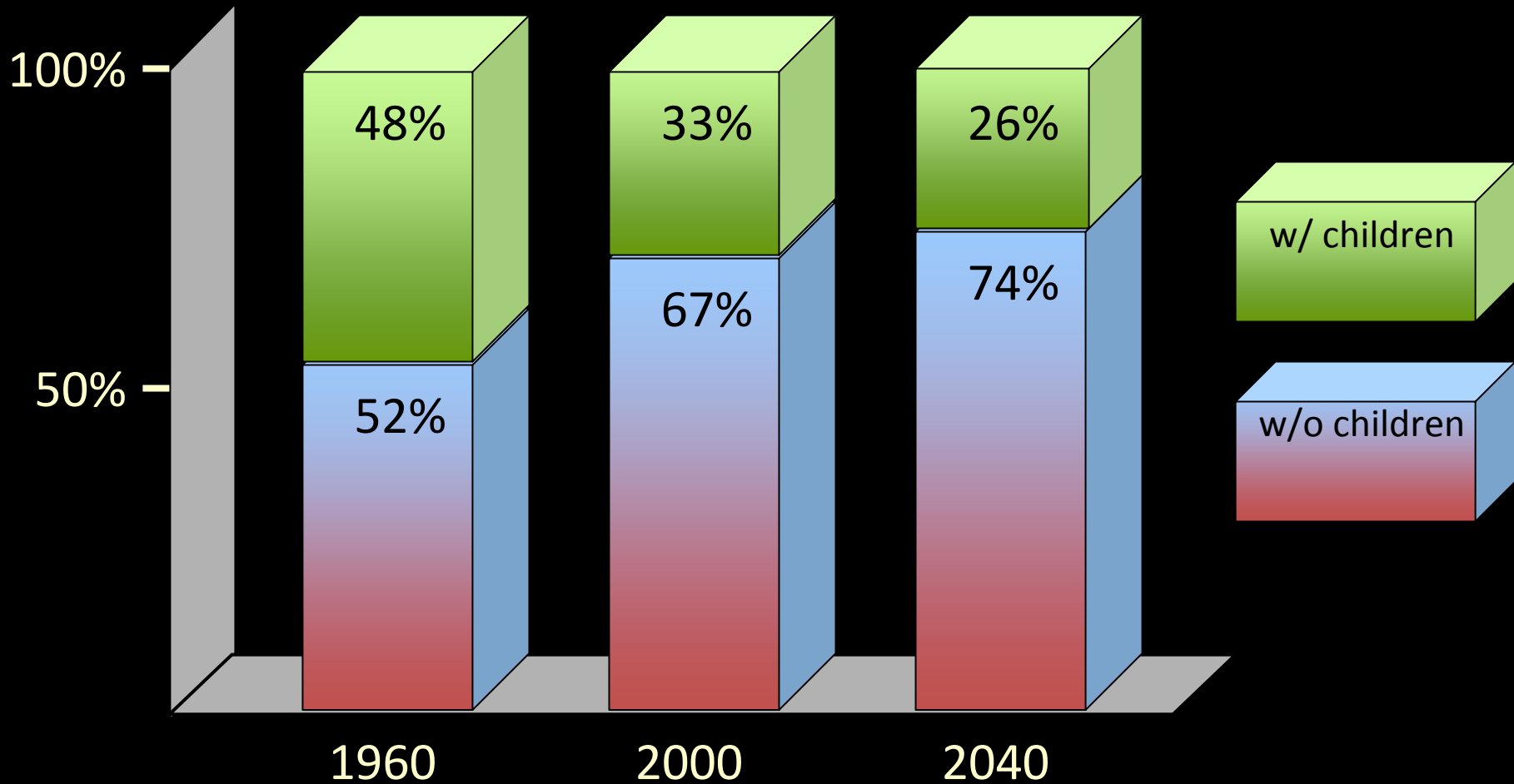


US Population

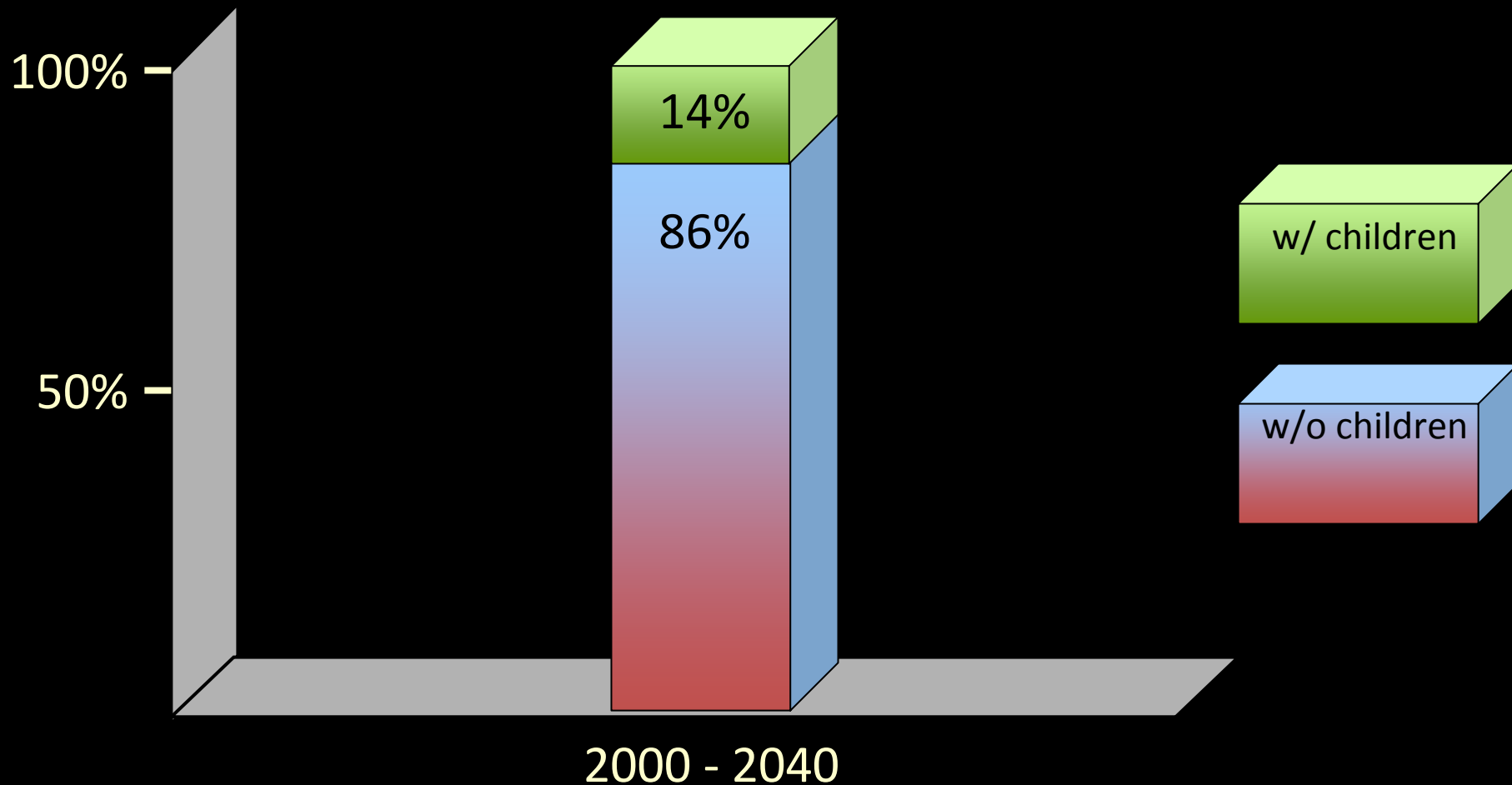


Source: US Census Bureau, 12/08

US Households

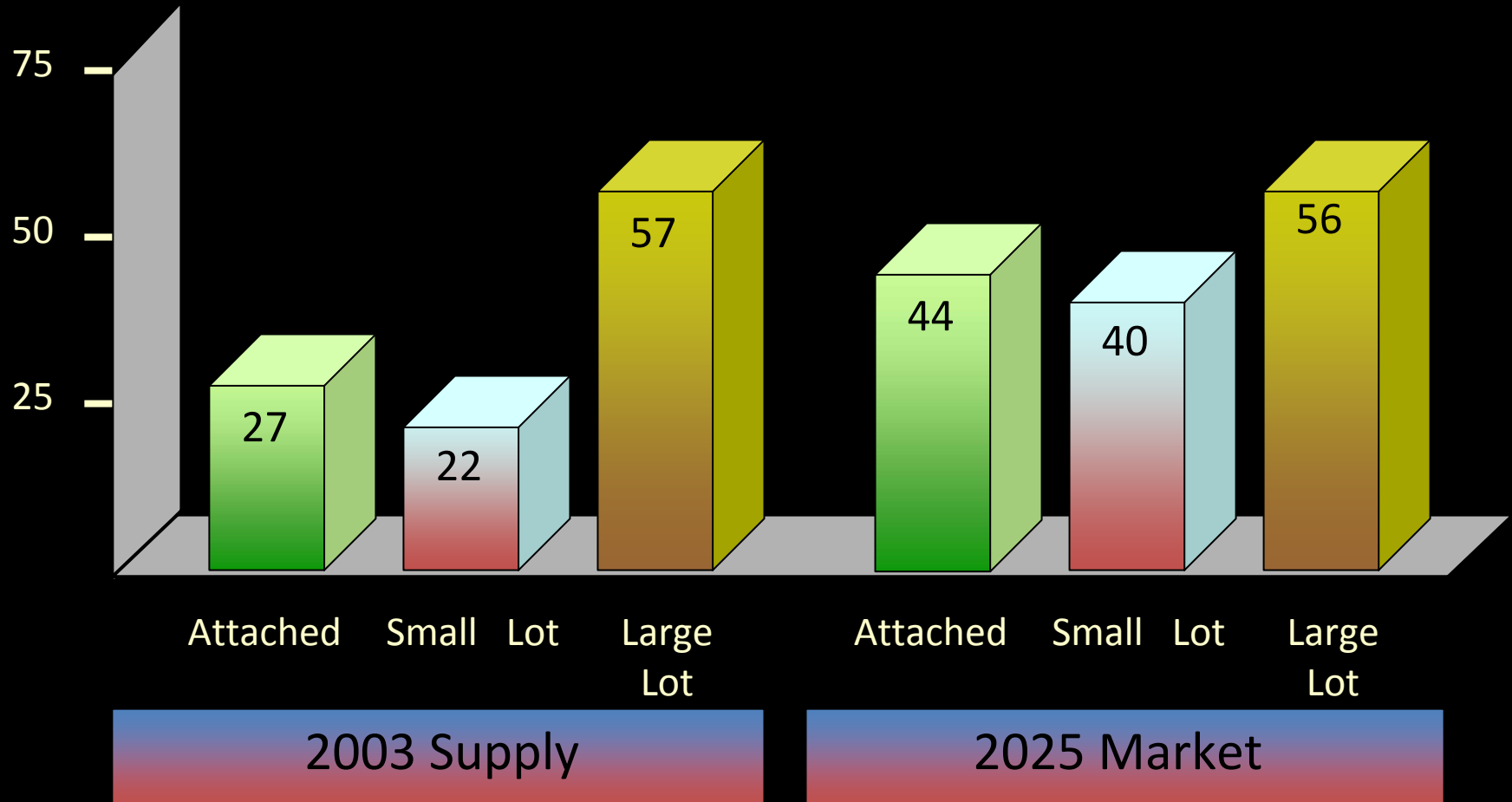


US Households - % of Growth



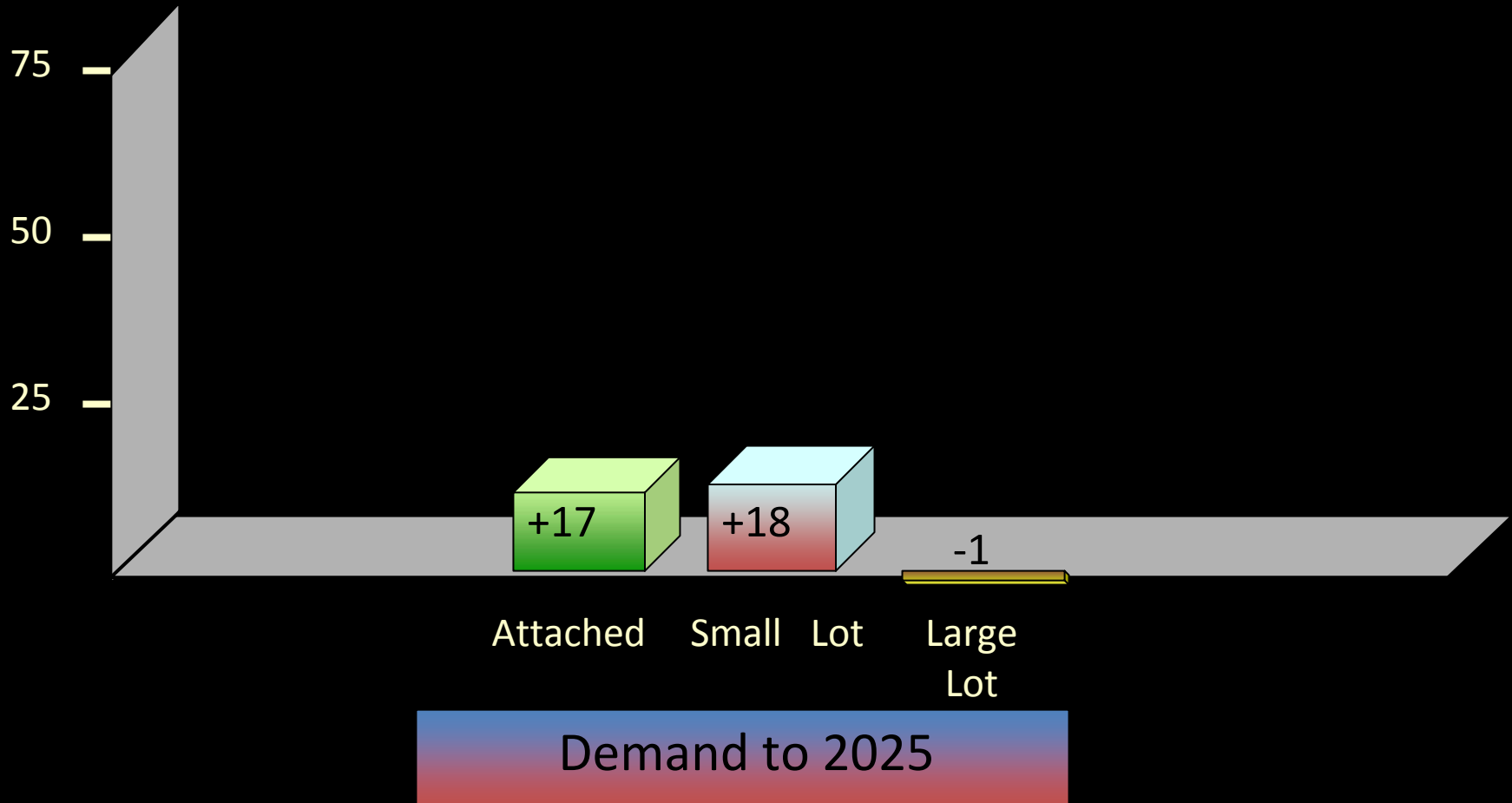
US Dwelling Units

Millions

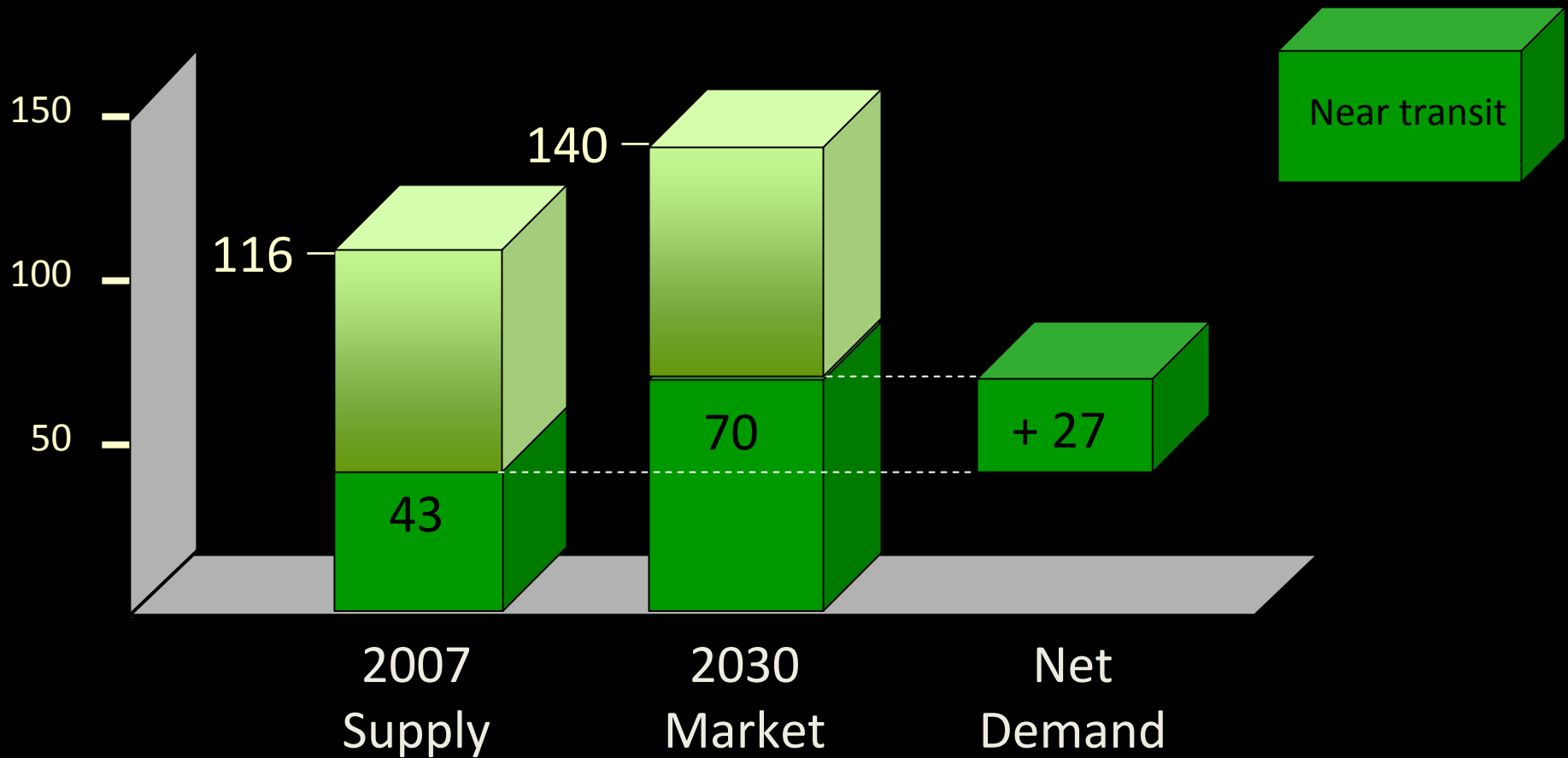


US Dwelling Units

Millions



US Households



this is beginning to affect
developers and housing starts

Voice of the Rocky Mountain Empire

THE DENVER POST

Y, MARCH 19, 2009



FOG EARLY, WARMER ▲ 65° ▼ 40° » 12B • DENVERPOST.COM • © THE DENVER POST • 50 CENTS PRICE MAY VARY OUTSIDE METRO DENVER ★★

INTO WAR
SOLDIERS
BREAK

M, 11A

**\$1 TRILLION MOVE
LIKELY TO REDUCE
MORTGAGE RATES**

» BUSINESS, 9B



TIPOFF TIME

Matt Bouldin and NCAA madness start the march at 10:30 a.m. » 1C

e» It's still winter... for one more day. Check the latest ski conditions. » denverpost.com/skireport

Growth goes urban

Denver trails only Douglas County in metro-area population gains

By Burt Hubbard *The Denver Post*

Forget suburbia. Denver is the new growth hot spot in the metro area.

A U.S. Census Bureau report released today shows Denver grew faster last year than all but one of its surrounding suburban counties.

"That is amazing. It doesn't surprise me (it grew), but I didn't realize it was at such a fast rate," said Denver City Councilman Michael Hancock.

Denver wasn't the only growth superstar in Colorado, according to the report. The Greeley metro area, consisting of Weld County, was the fourth-fastest growing metro area in the nation since 2000.

And five Western Slope counties, led by energy-rich Garfield County, ranked in the top 10 in population gains in Colorado in the 12 months ending in July 2008.

The report showed Denver's population grew

2.7 percent in the 12 months ending July 2008, adding about 16,000 people since July 2007 and falling just short of 600,000.

Only Douglas County, at 3.5 percent, grew faster in the seven-county metro area. It's the first time this decade that Denver has grown faster than most of its suburbs.

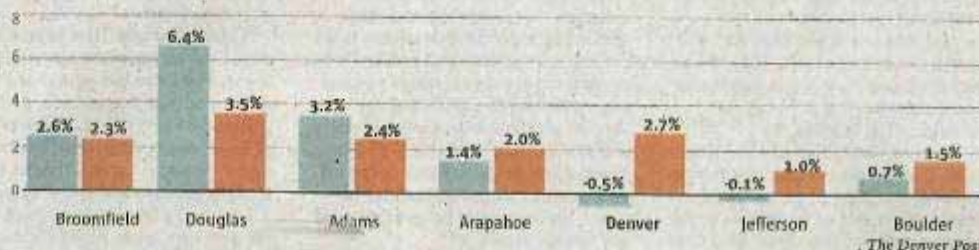
Jeff Romine, chief economist for the Denver Office of Economic Development, said a resurgence

CENSUS » 12A

Denver's growth

Denver's population last year grew faster than all but one of its neighboring suburban counties, the first time that has happened this decade.

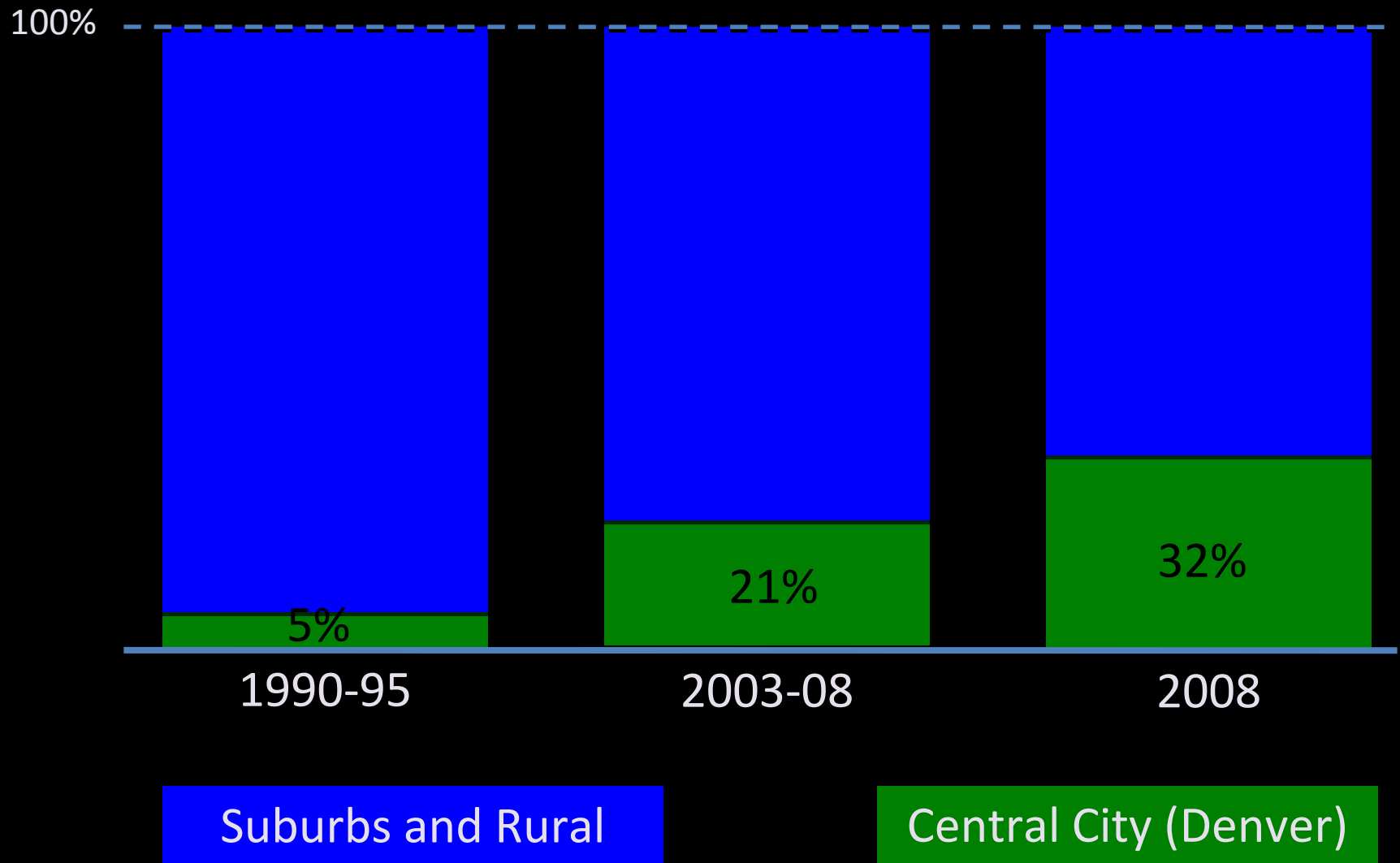
■ Percent change 2001-02
■ Percent change 2007-08



Source: U.S. Census Bureau

The Denver Post

Share of New Housing Starts by Regional Location – Denver Region



Walking the Walk

How Walkability
Raises Home Values
in U.S. Cities

Joe Cortright, Impresa, Inc.,
for CEOs for Cities
August 2009

CEOs
FOR CITIES
INSPIRE · CONNECT · SUCCEED

Walkability and House Value*

City	Walkability Premium
Austin, TX	+ \$24,871
Dallas, TX	+ \$4,278
Fresno, CA	+ \$7,427
Phoenix, AZ	+ \$18,689
Sacramento, CA	+ \$34,345
San Francisco, CA	+ \$32,837
Seattle, WA	+ \$19,789
Tucson, AZ	+ \$10,841

* difference in house value: citywide median WalkScore compared to 75 percentile and above

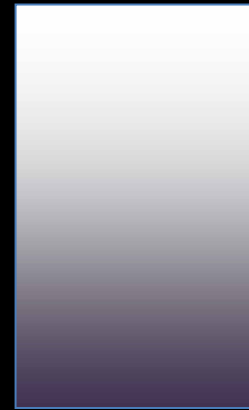
Walkable, mixed-use urbanism will be the primary market for new housing

Walkable, mixed-use
urbanism – housing stock
available in 2010



5%

Walkable, mixed-use
urbanism – housing
demand to 2040



33%

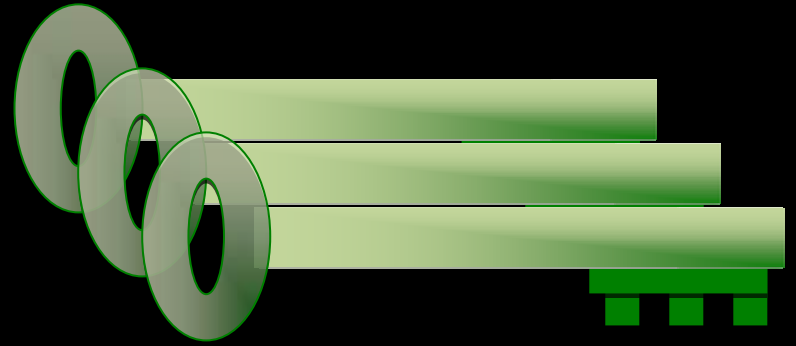
76 million seniors

78 million millennials



two largest generations, same housing market:
mixed-use, transit-served, walkable neighborhoods

3 Keys



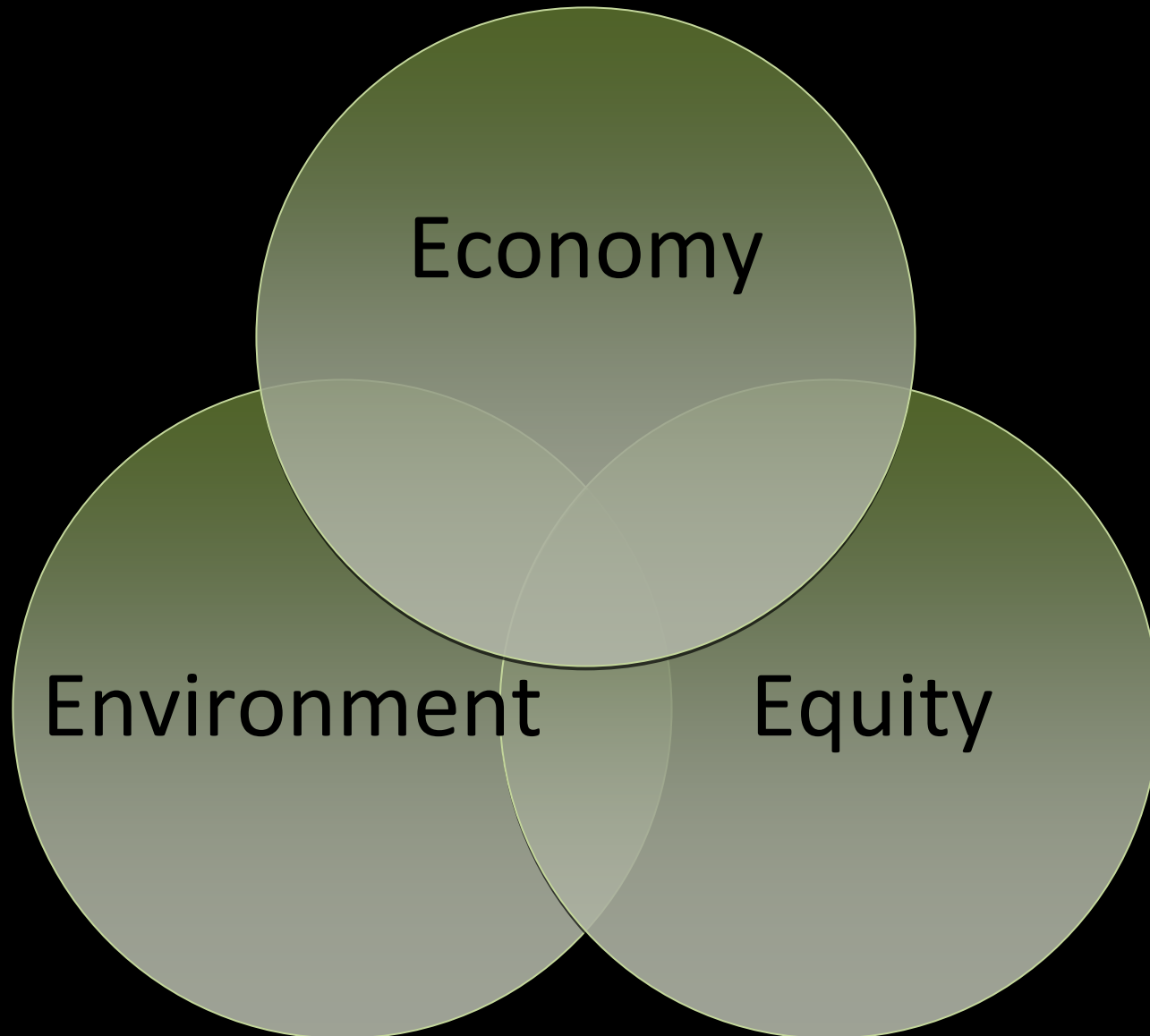
Transportation and the Future

Implications – Federal Policy



Reducing Our Vulnerability

Triple Bottom Line



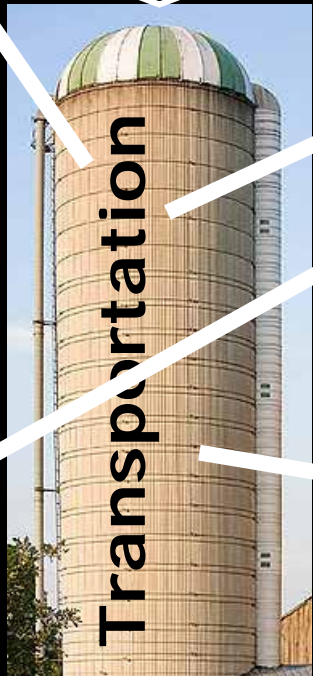
“Sustainability”



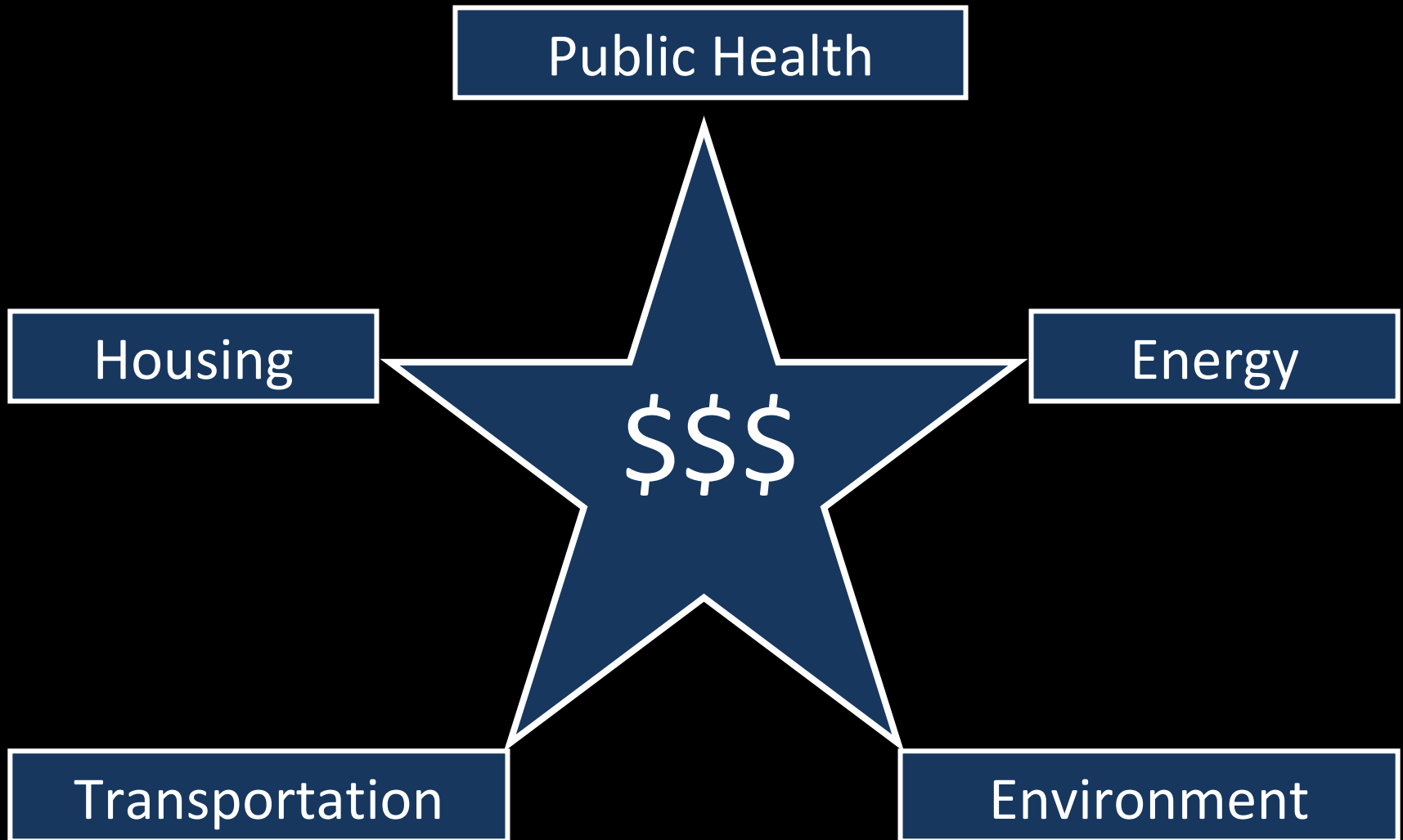
...meeting the needs of the present
without compromising the ability of
future generations to meet their needs.

How We Spend Money

Single Purpose Spending



Integrated, Strategic Investment

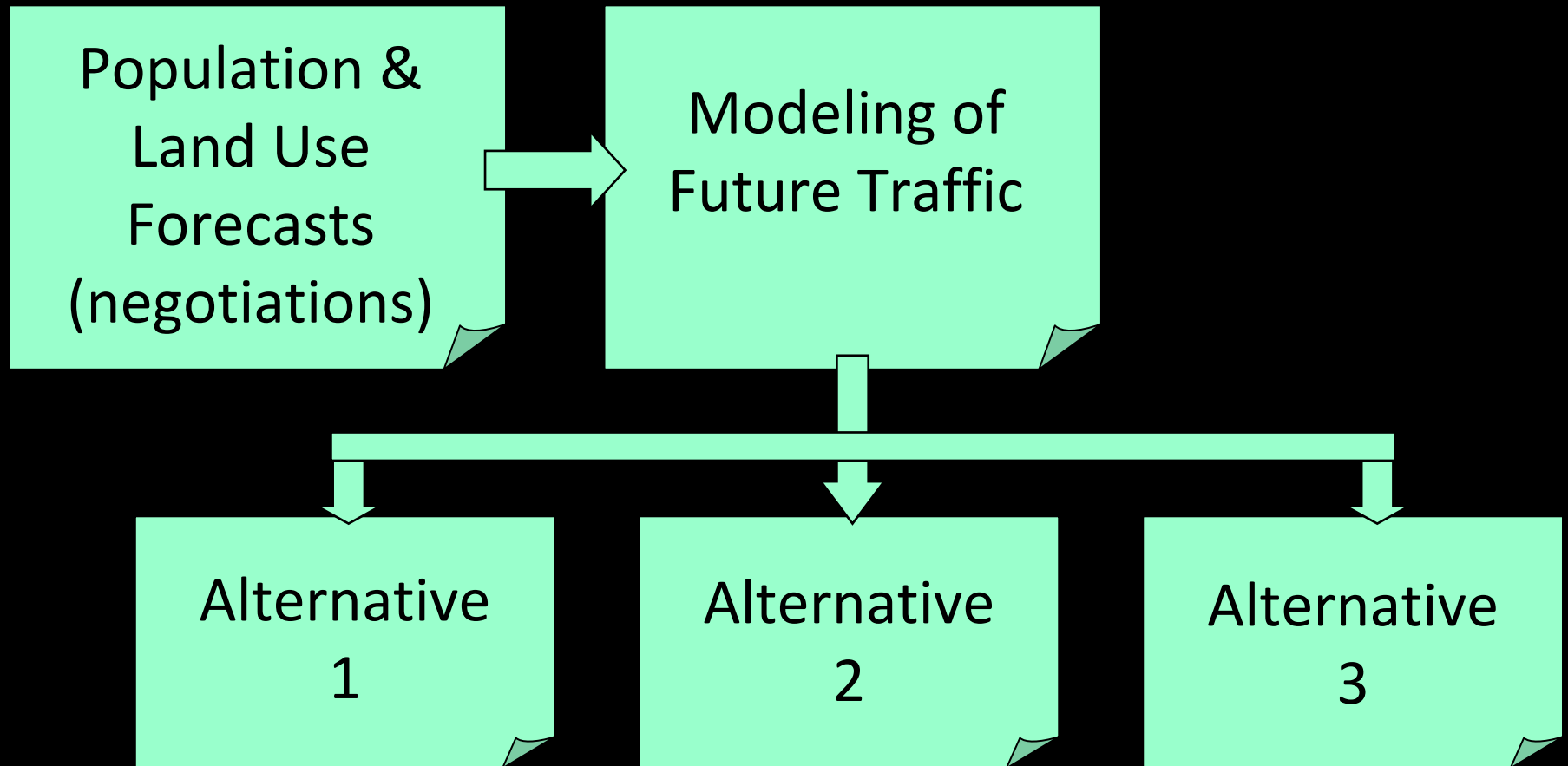


Interagency Partnership for Livable Communities

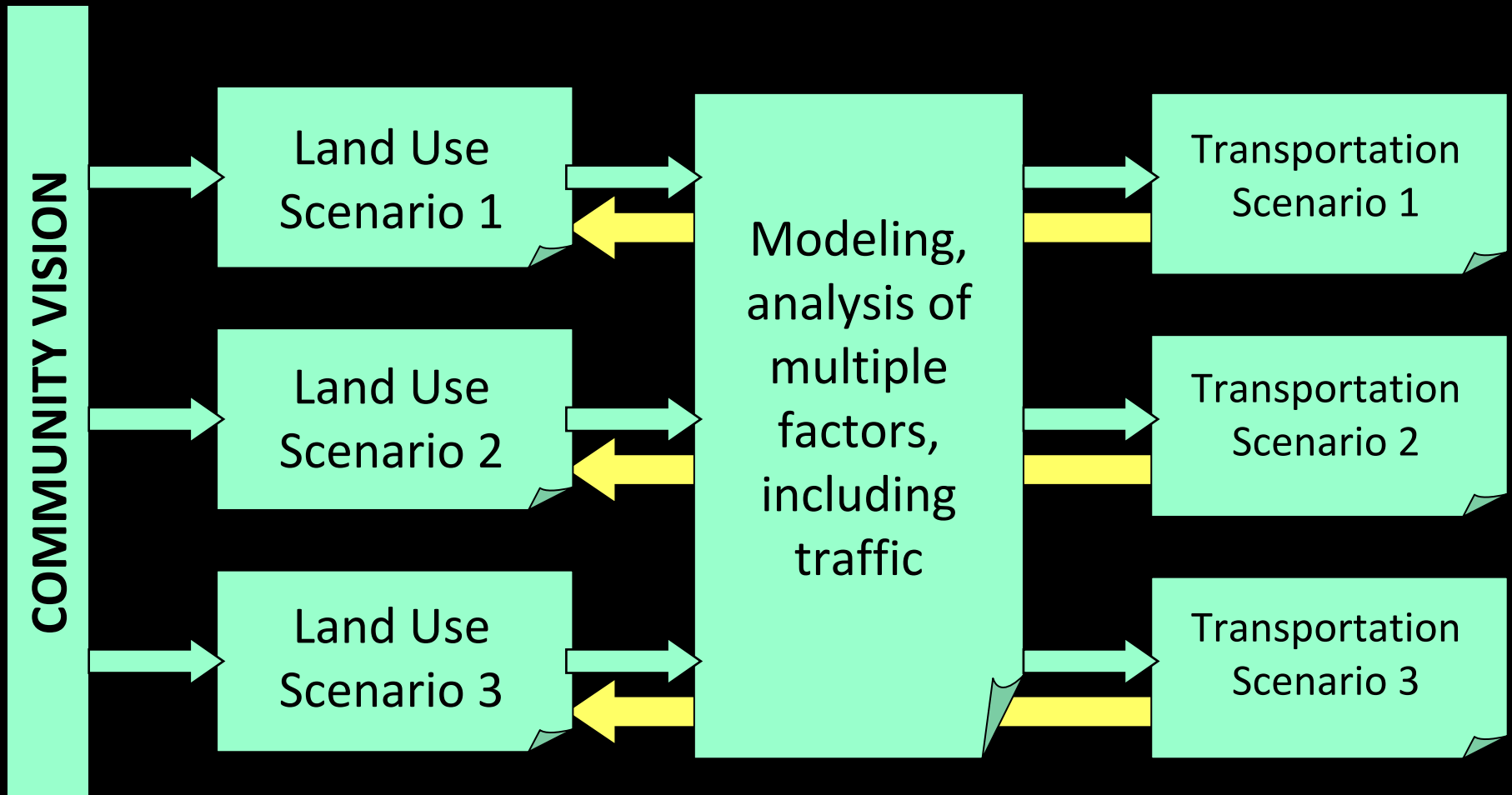


How We Plan

Old School Transportation Planning

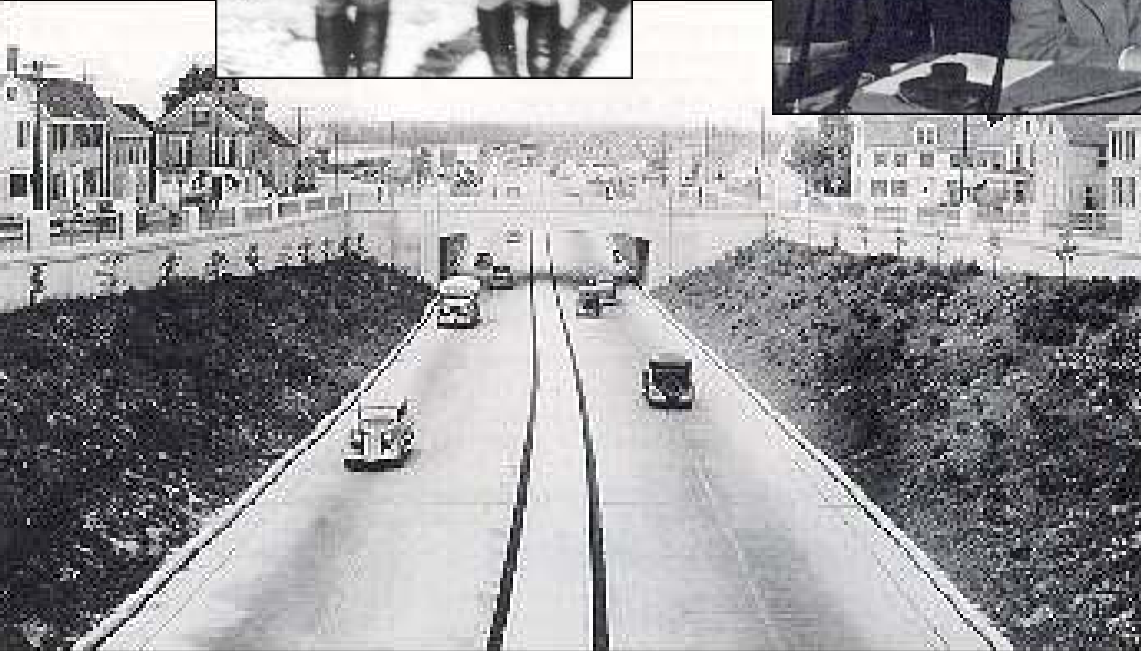
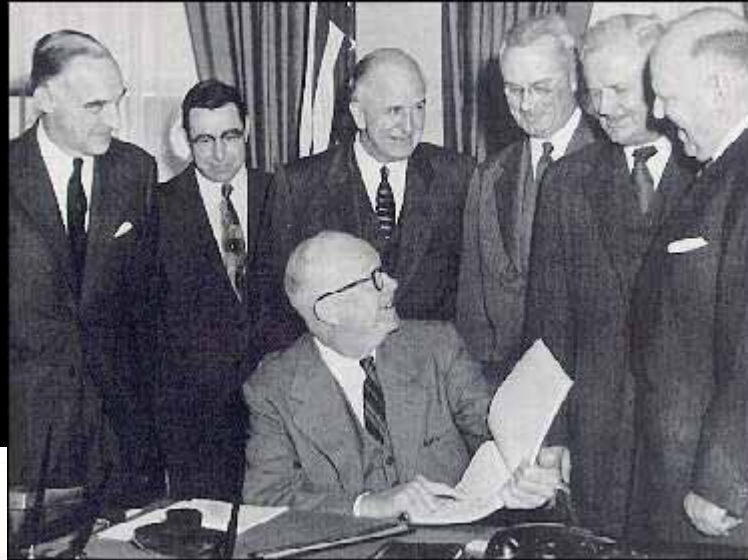


Scenario Planning



Our Next Big National Infrastructure Program

50s – 70s: Interstate Highway System



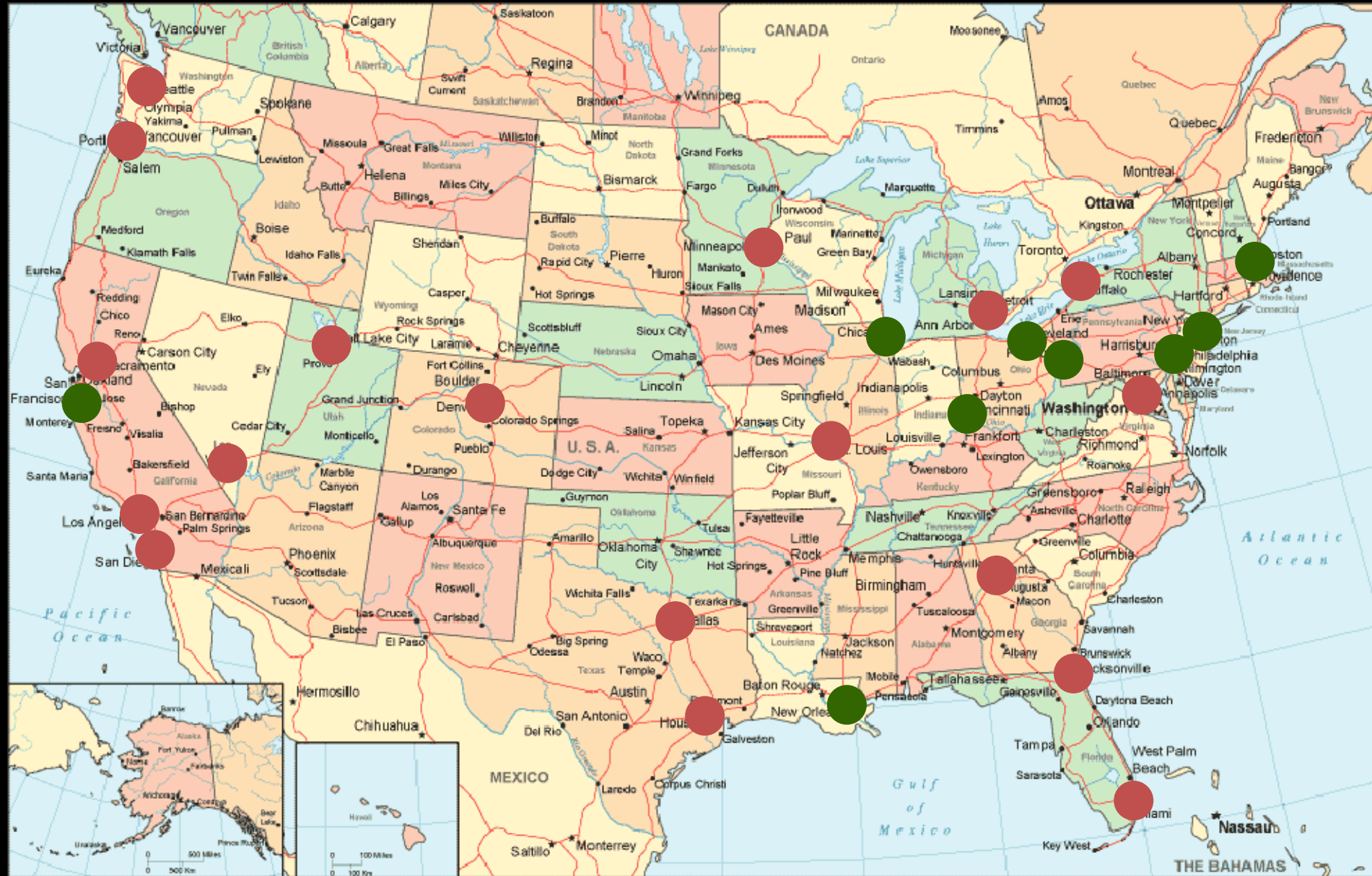
70s – Today: Urban Rail Transit



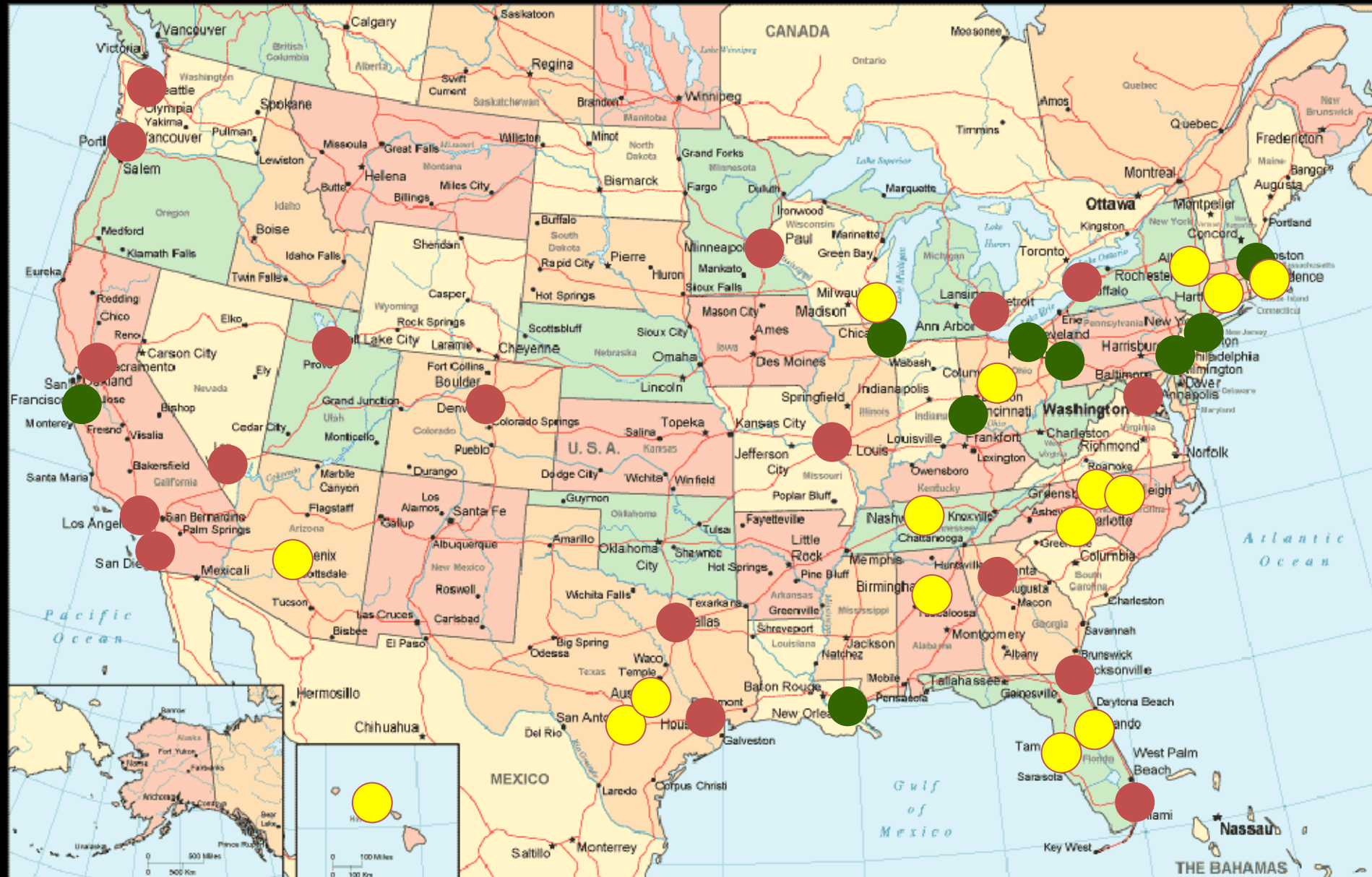
Rail Cities in the United States (as of 1971)



Rail Cities in the United States (as of 2006)



Rail Cities in the United States (by 2021)



21st Century: Intercity Rail System



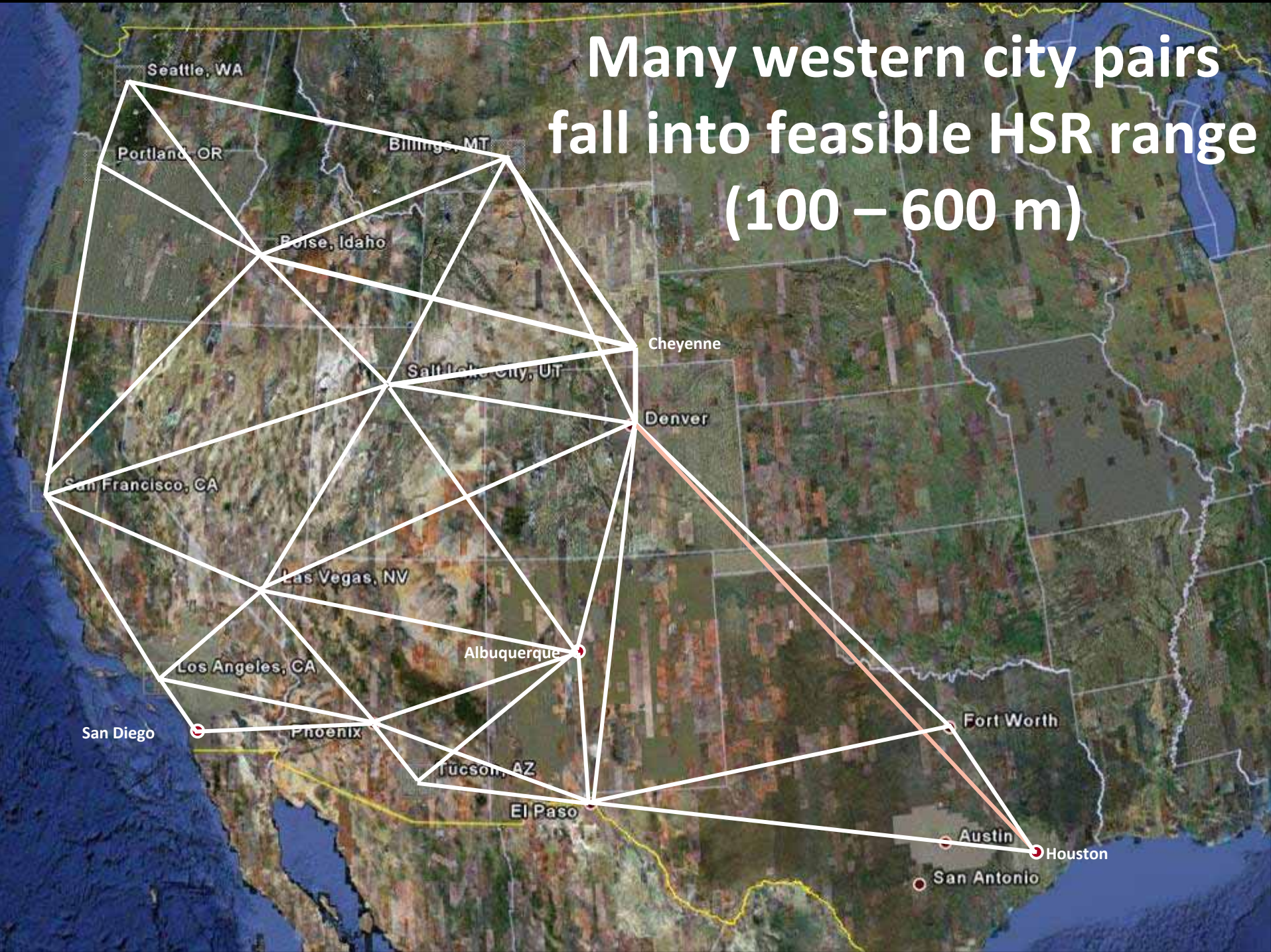
High Speed Rail



Officially Designated HSR Routes



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



wrap up



1



Energy

Petroleum Dependency



2



Public
Health

Transportation & Public Health

Traffic Safety + Personal Health



3

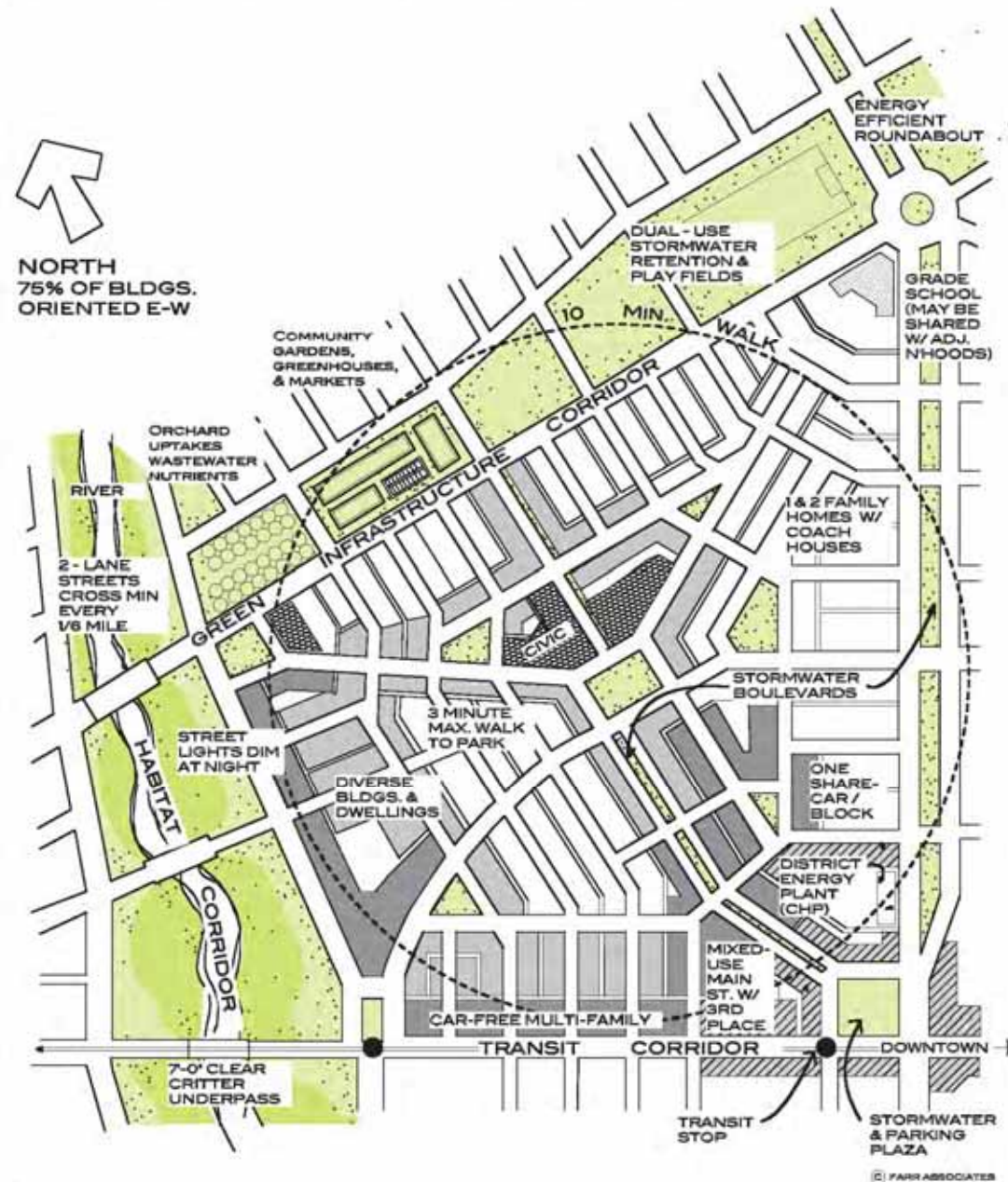


Land Use Economics

the complete neighborhood

- walkable
- mixed-use
- transit-served

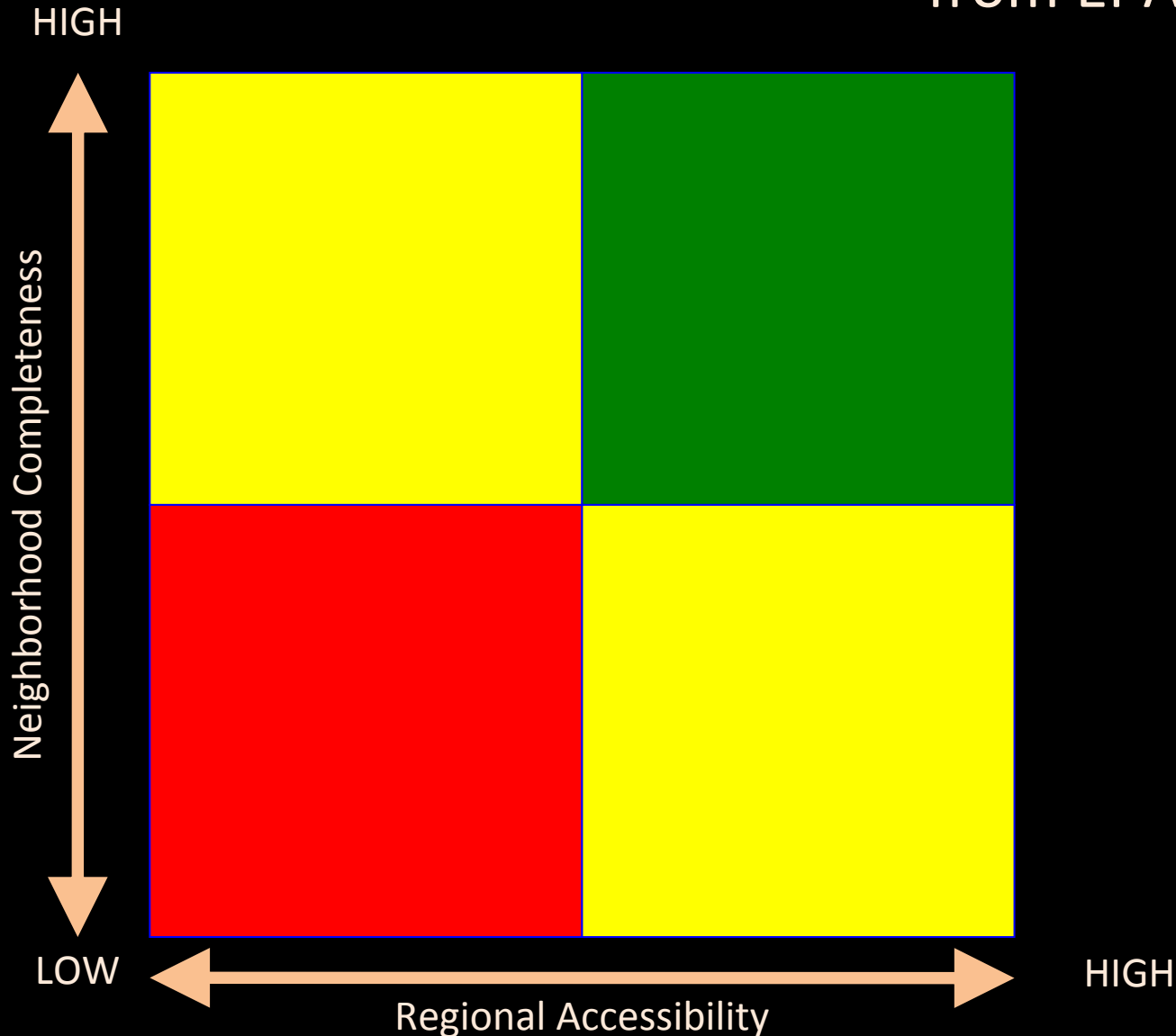
AREA: PREFERABLY 160 ACRES, MIN. 40, MAX. 200
POPULATION: TO SUPPORT CRITICAL MASS OF WALK-TO DESTINATIONS.



A SUSTAINABLE NEIGHBORHOOD (BUILDING BLOCKS OF A SUSTAINABLE CORRIDOR)

Place Types

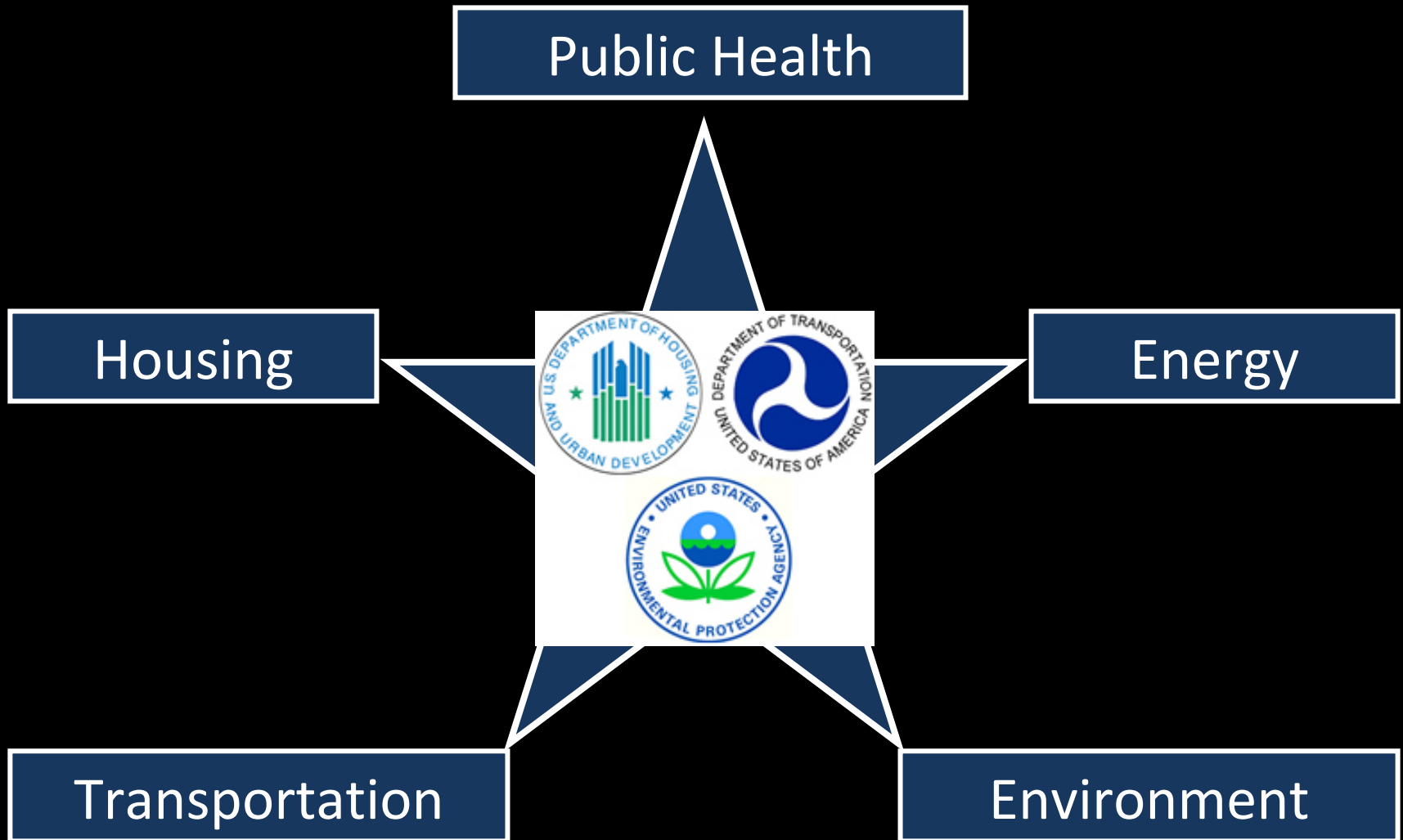
* from EPA/Caltrans work



Implications – Federal Policy



Integrated, Strategic Investment



It's Not Your Father's Transportation Program



Thanking You

www.charlier.org

