

Why You Should Care About

“GreenTea”



Charlier Associates, Inc.

My Assignment

1. The federal transportation program
2. What it means to our communities
3. 5 things “GreenTea” must do

1.

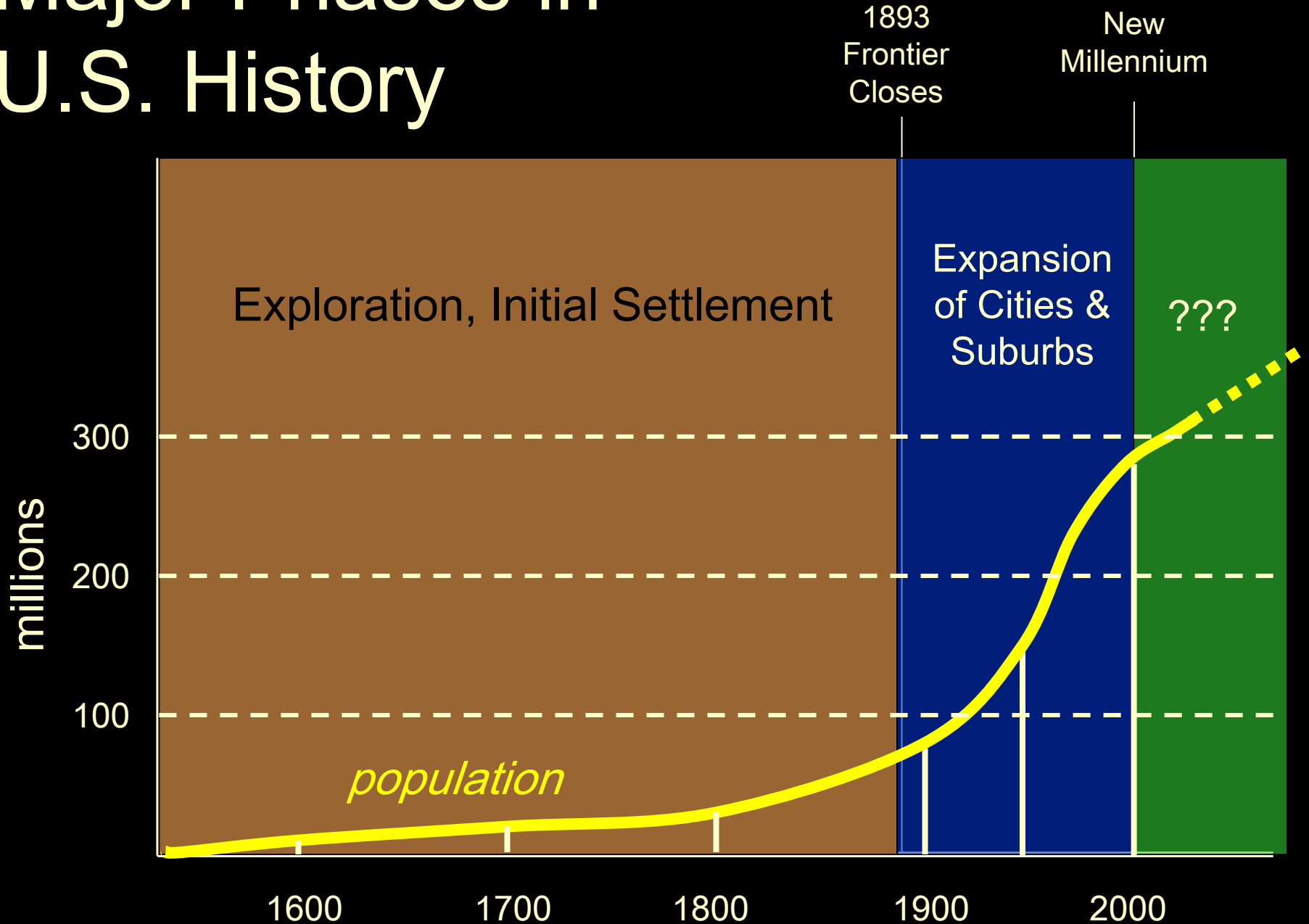
The Federal Transportation Program



How did
we get
here?



Major Phases in U.S. History







← OMAHA

← OMAHA SHORT CUT

45 LESS CORNERS TO THE PAVEMENT AT
COUNCIL BLUFFS 45 MI
FREE CAMP GROUNDS AT
GRISWOLD 6 MI.

→ 2 OMAHA 45 MI

WHITE - WAY

→ OMAHA

SHORTEST & BEST
ROUTE

SHORTER HILLS

NO BAD CORNERS

OAKLAND
10 MILES
THE CLIPPING GROUND
CHATELAIN J. B. B.









Our Learned Approach

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





Public Transit In The U.S.

1880

1945

1970

1990

Private
Transit
Era

First
Streetcar
Suburbs

First Urban
Rail Systems

Private Bus
Systems

Streetcar
Lines
Abandoned

Urban Rail
Systems
Decay

Private Bus
Systems
Begin to Die

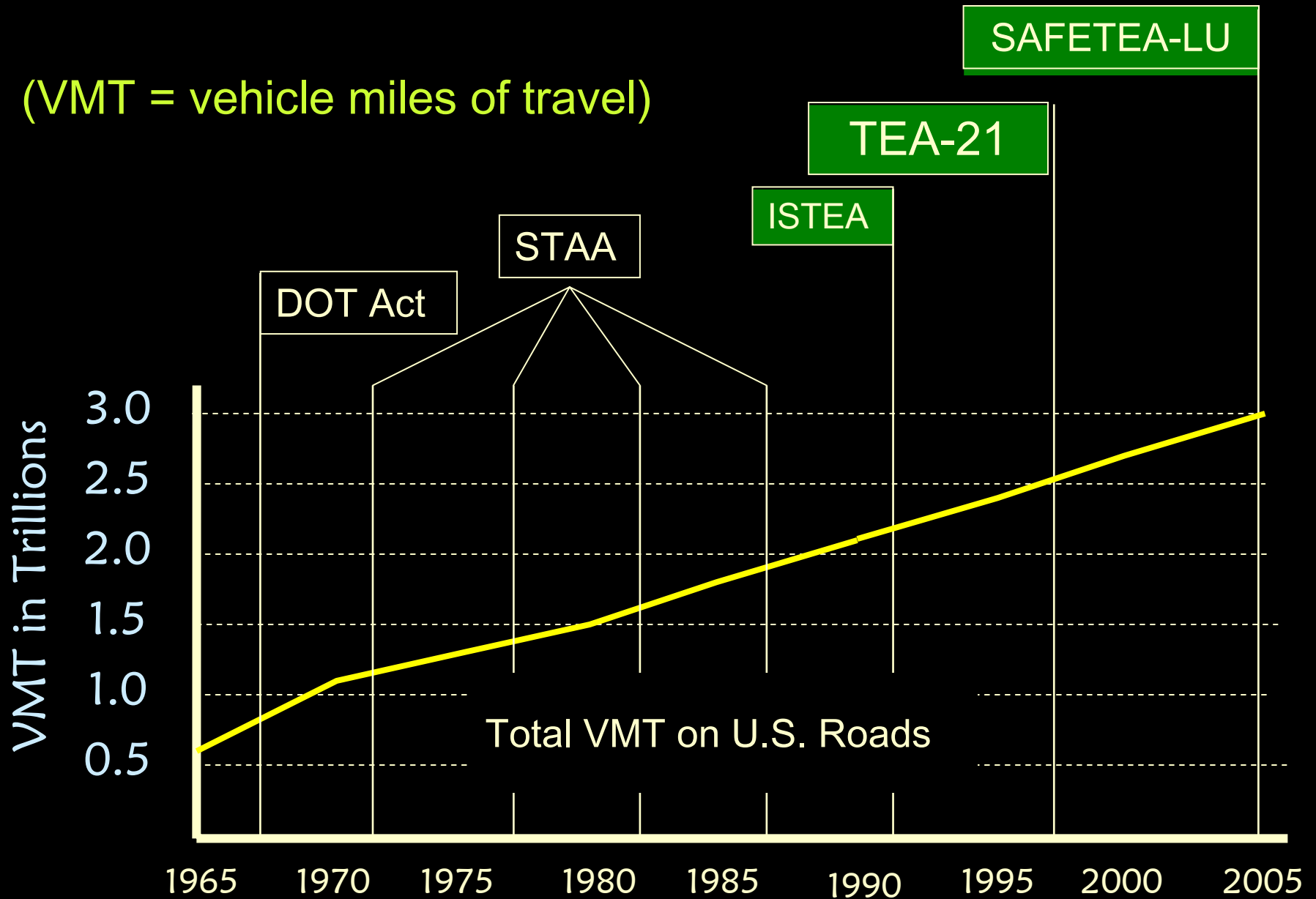
New Urban
Rail
Systems

Private Bus
Systems
Taken Over
as Public
Transit

Modern
Urban
Transit

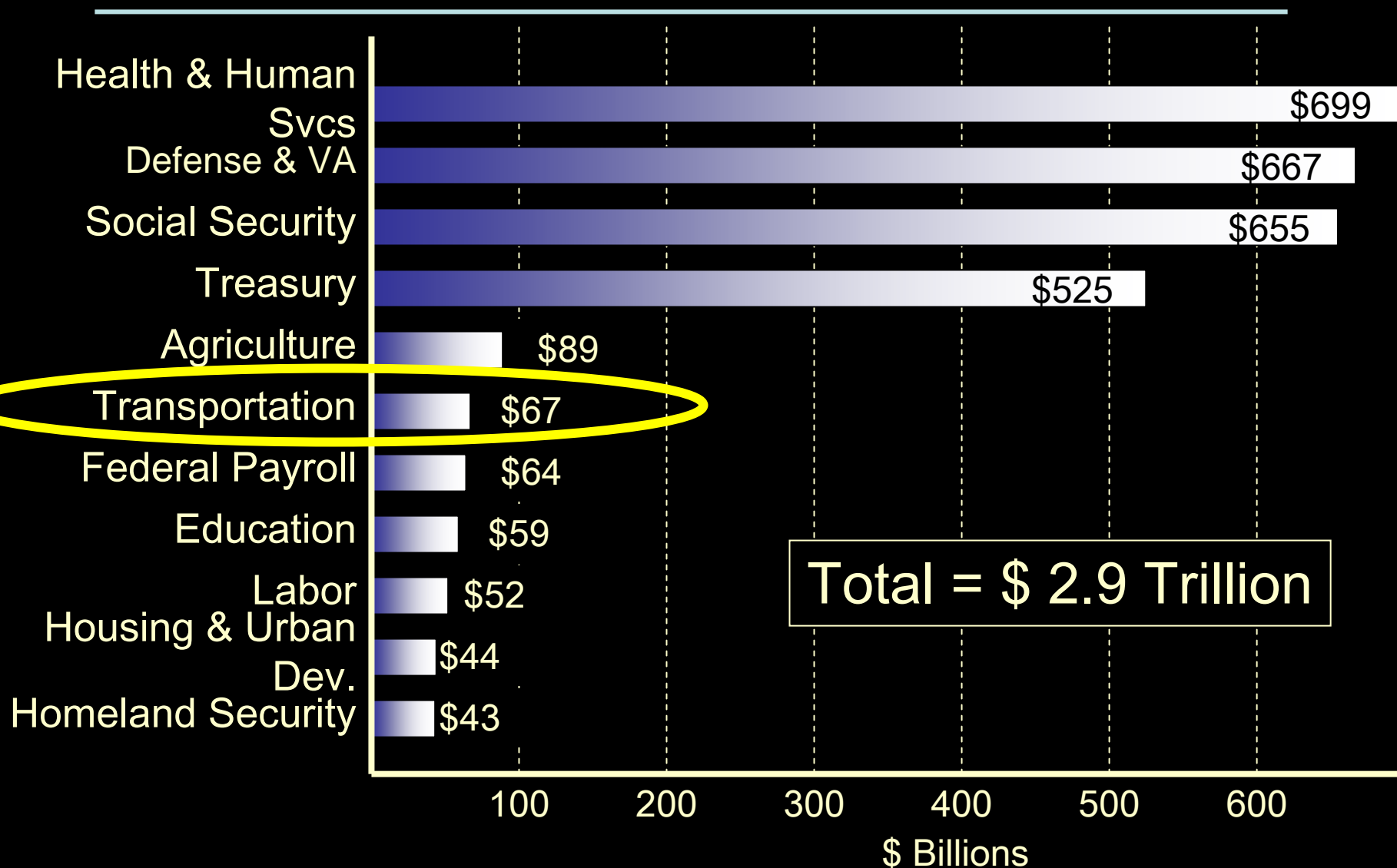
40 Years of Surface Transportation Legislation

(VMT = vehicle miles of travel)



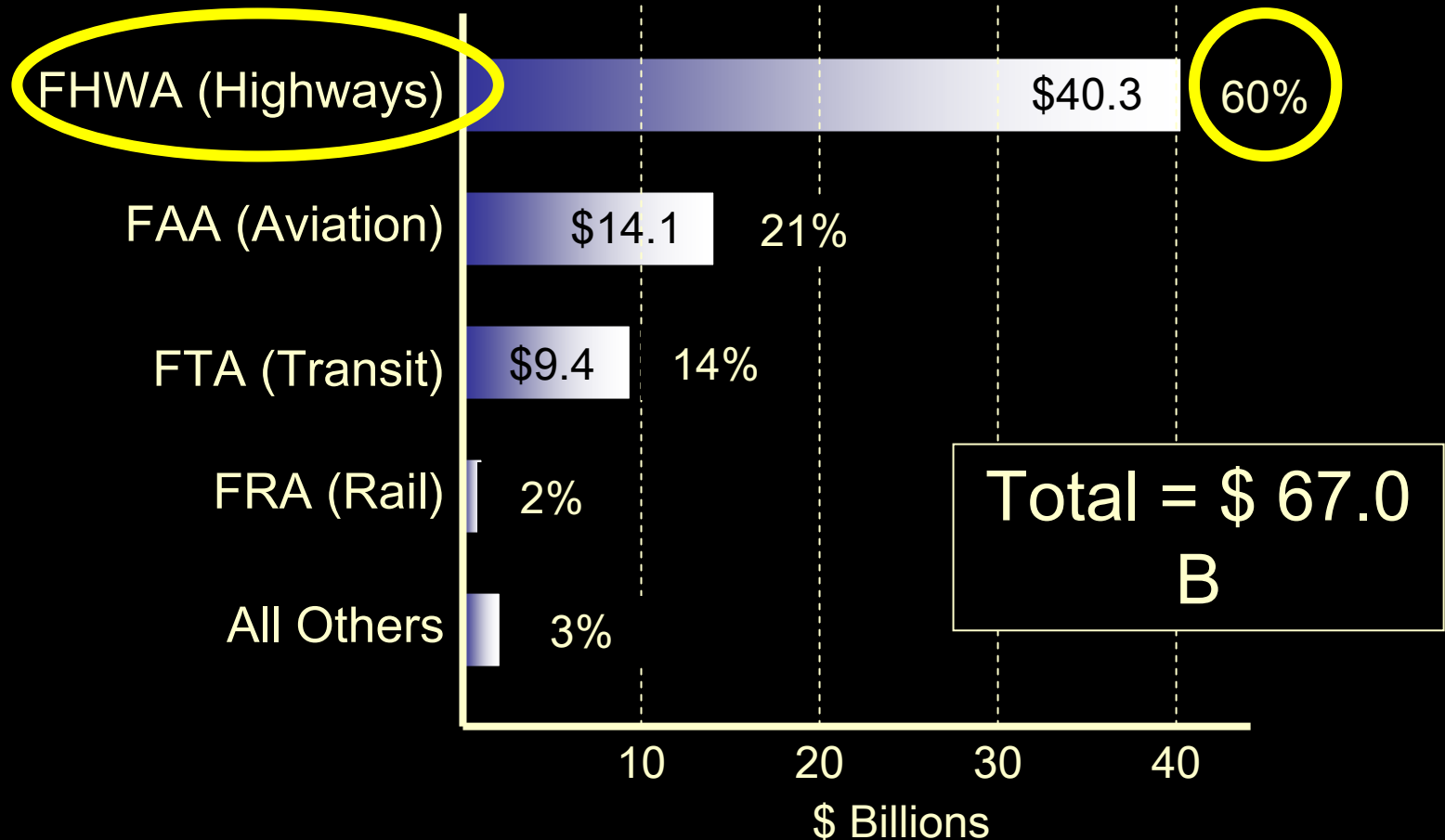
Total 2008 US Budget

(\$ Billions)



US DOT 2008 Budget – By Agency

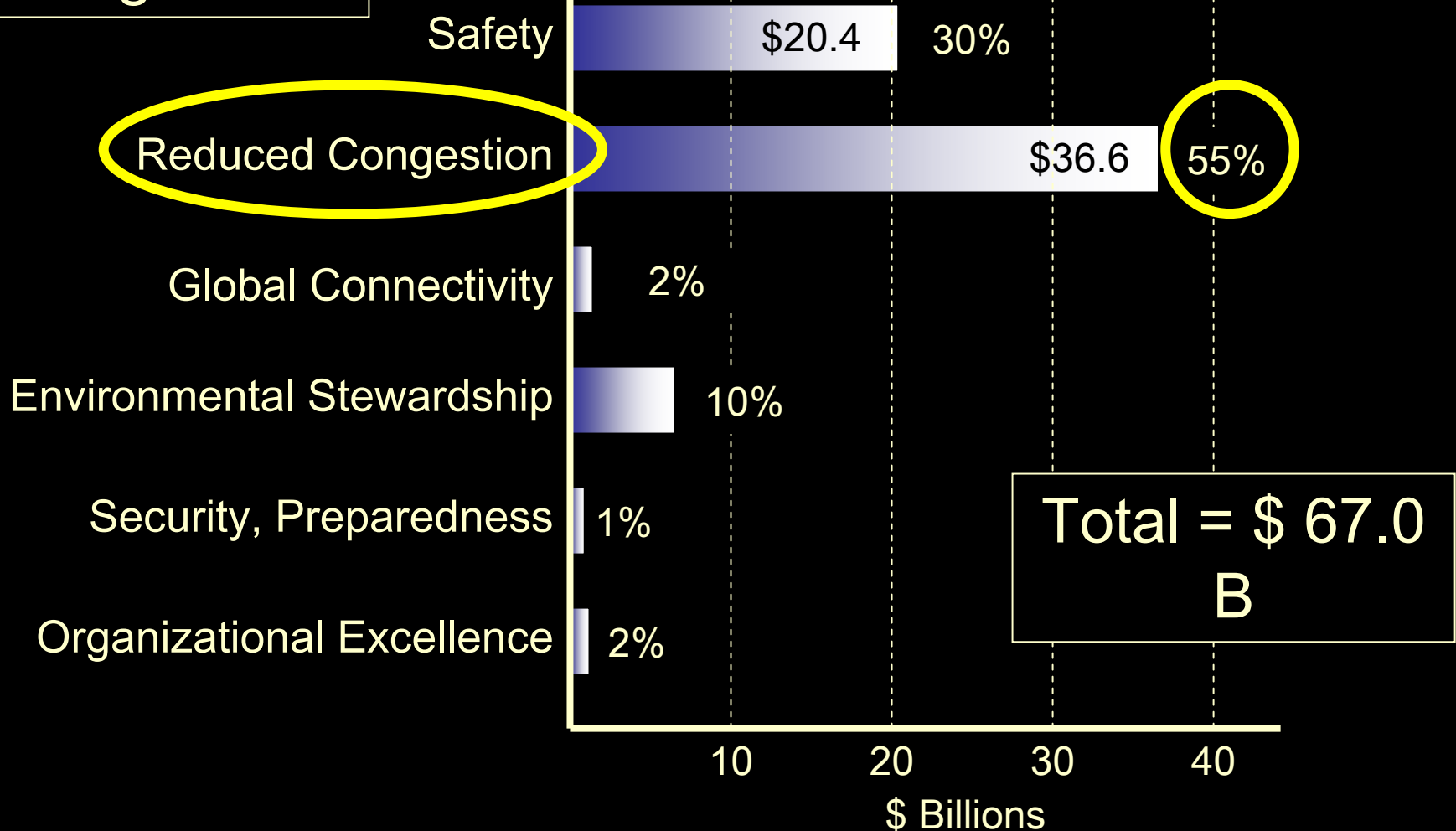
(\$ Billions)



US DOT 2008 Budget – By Function

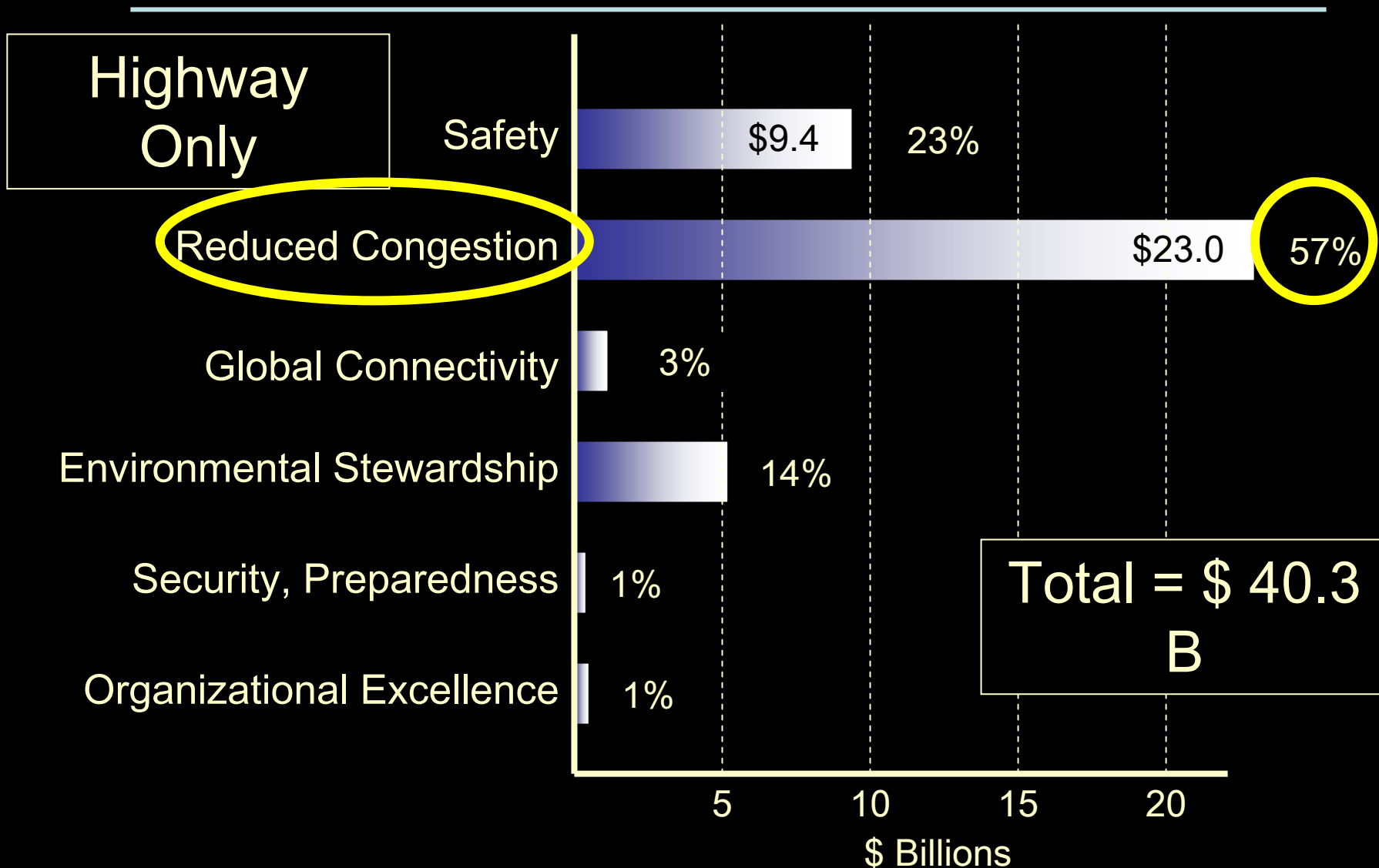
(\$ Billions)

All Agencies



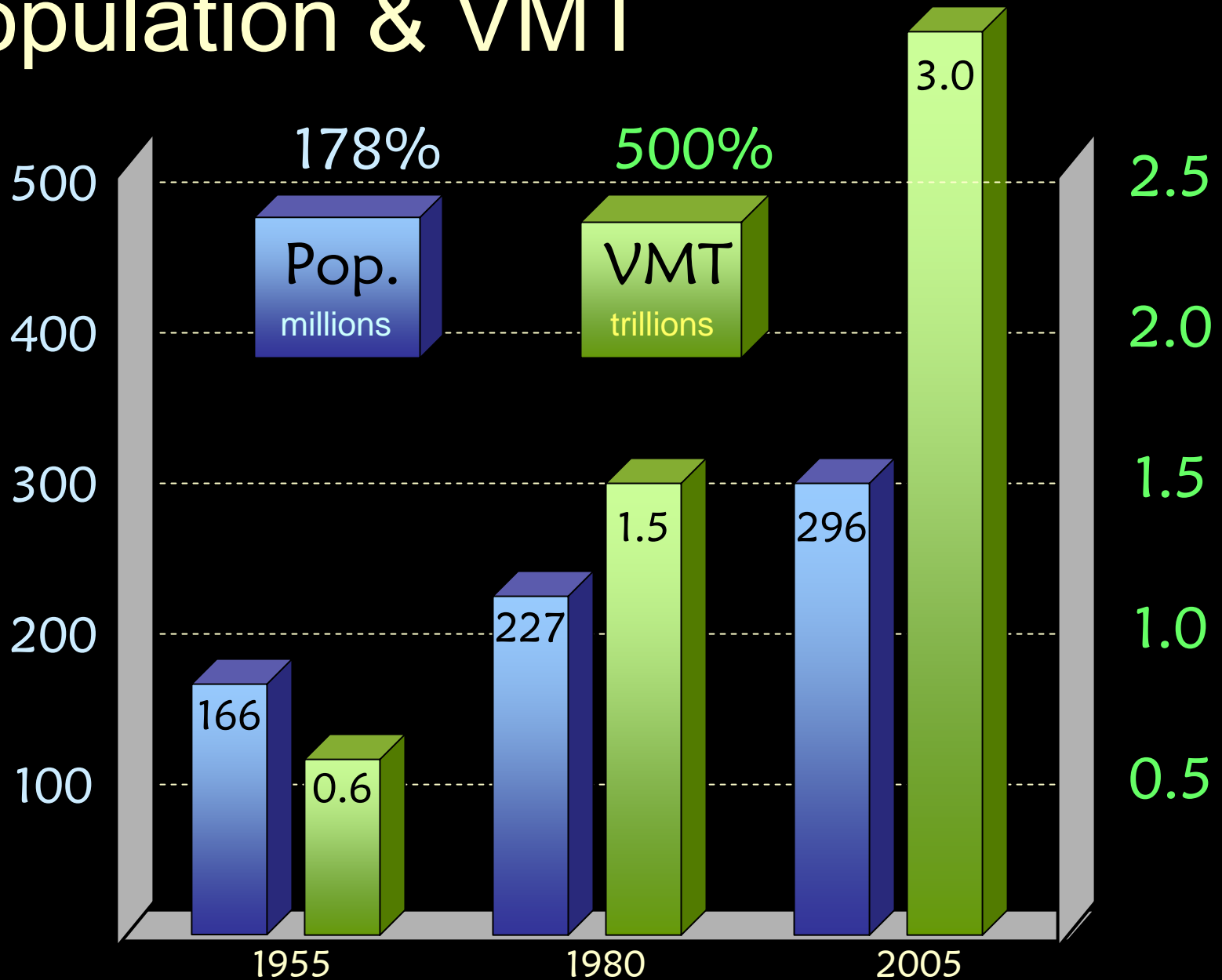
FHWA 2008 Budget – By Function

(\$ Billions)



United States

Population & VMT



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



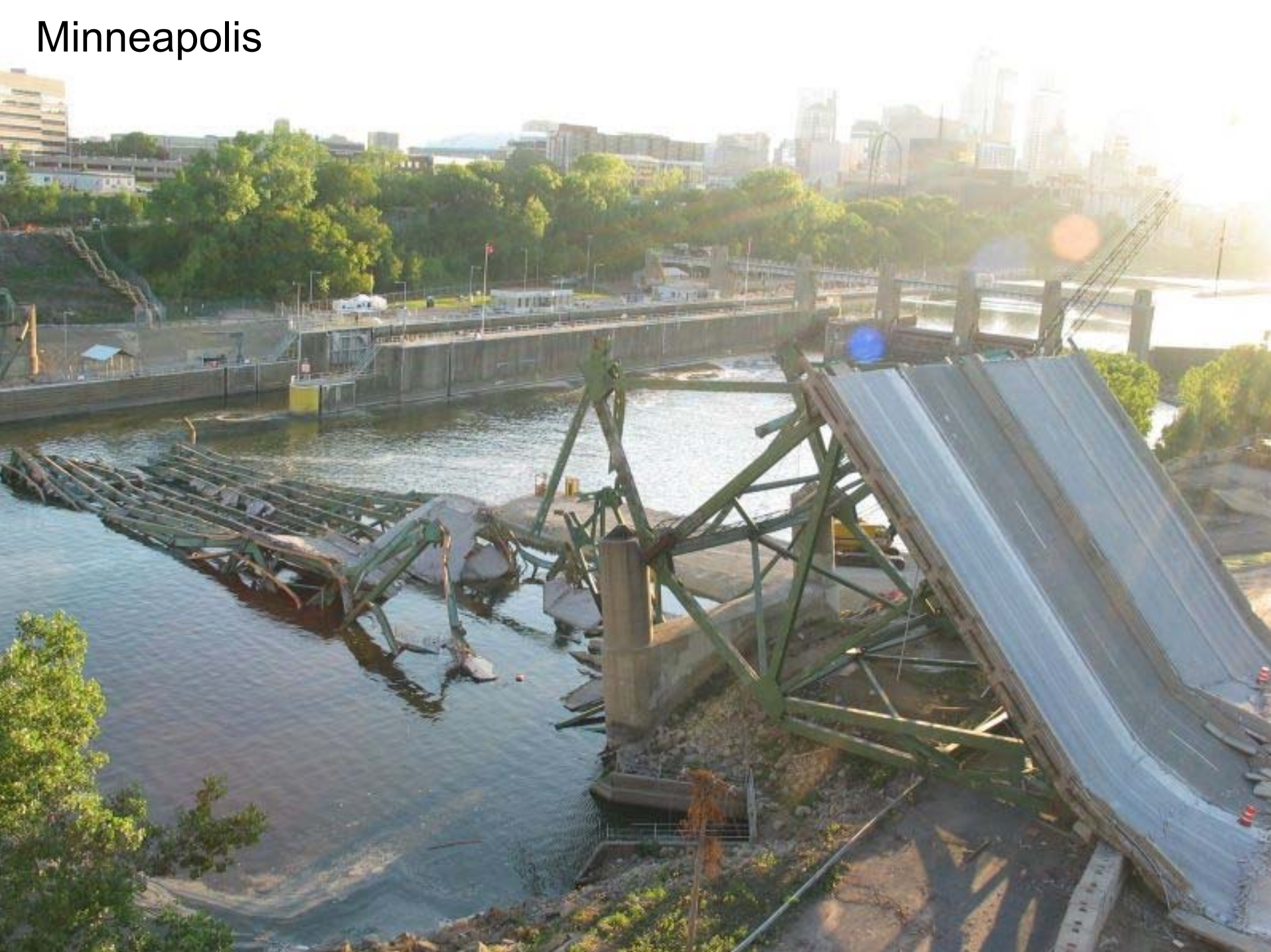
Trucks (multi-axle) now represent more than 20% of traffic in many arterial corridors and exceed 40% of traffic in many parts of the rural interstate highway system.



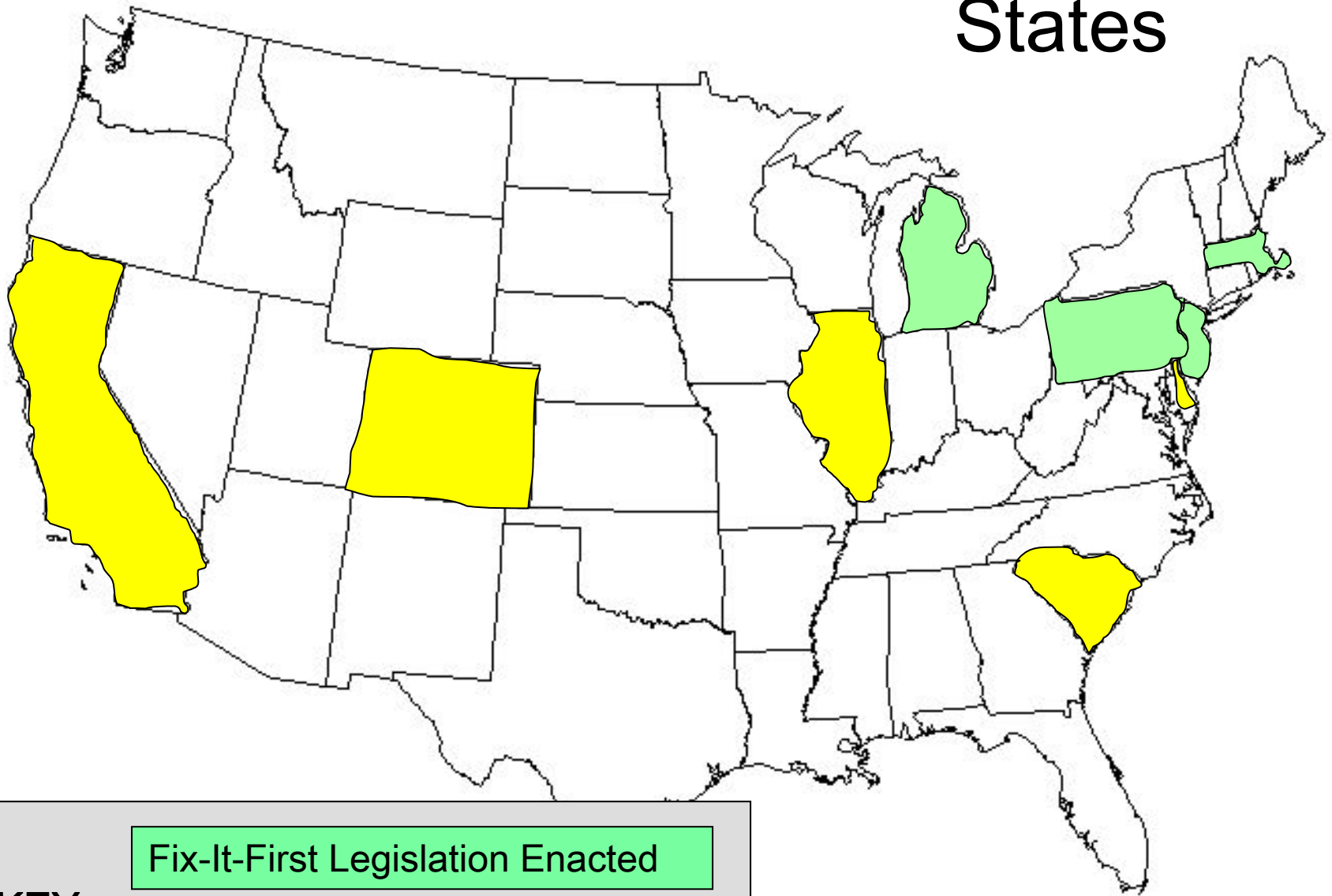
Colorado



Minneapolis



Fix-It-First States



KEY

Fix-It-First Legislation Enacted

Fix-It-First Under Consideration

How Well Is It Working? Part 1

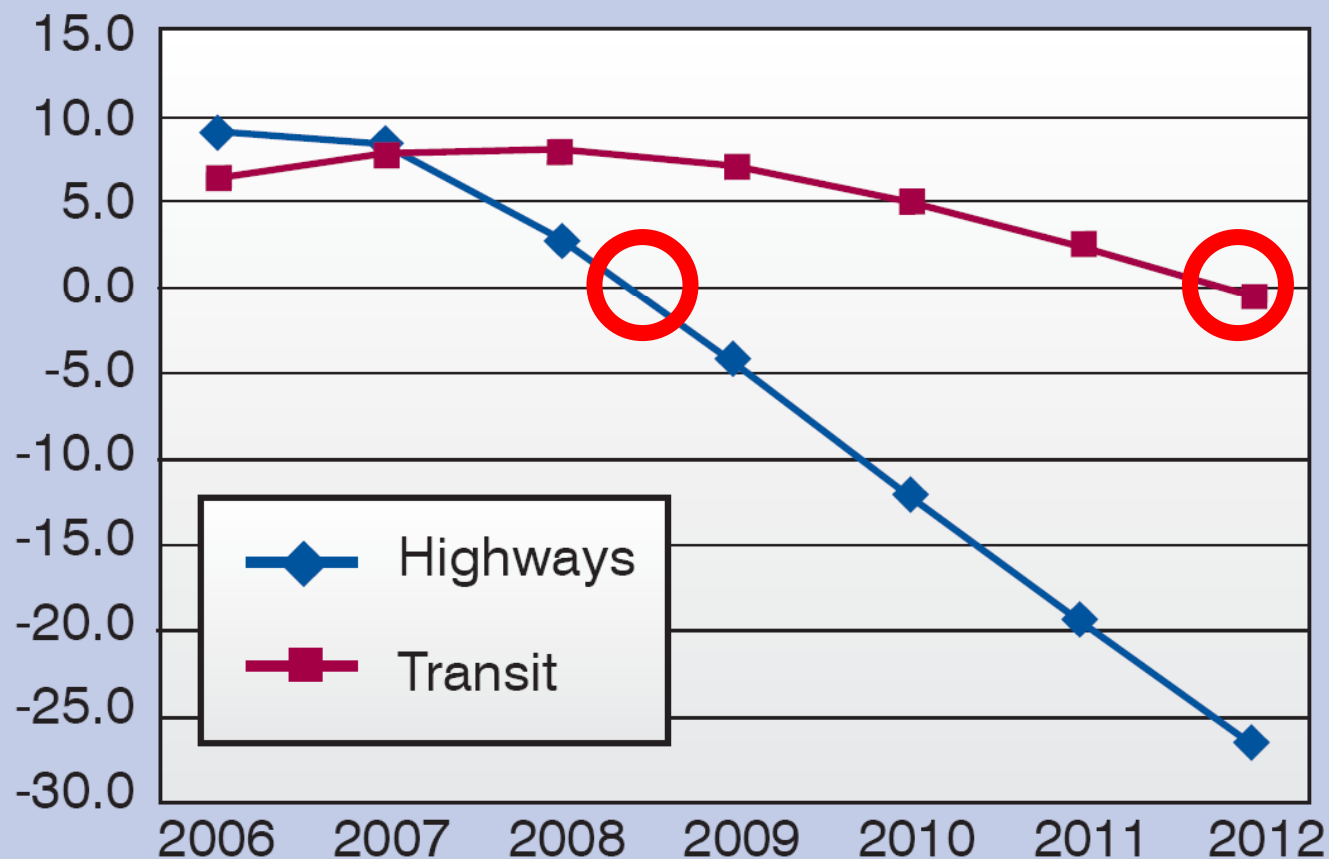
- The U.S. has developed the most extensive (> 4 million centerline miles) road system in the world
- The U.S. economy features high levels of auto ownership and a vast truck-based freight transportation system
- Our prosperity and productivity are tied directly to motor vehicles and petroleum fuels

How Well Is It Working? Part 2

- VMT has grown twice as fast as highway capacity in the nation's urbanized areas
- Federal (and state) transportation policy has been a primary engine of sprawl
- We have a major deferred maintenance problem

Projections of Highway and Transit Account Balances Through 2012

Dollars, Billions



Source: National Surface Transportation Policy and Revenue Study Commission –
Transportation for Tomorrow (Dec 2007)

2.

What The Federal Transportation Program Means to Our Communities



Impact on Communities

- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- We are making mobility unaffordable
- We are making our neighborhoods and communities unsafe and unhealthy

Impact on Communities

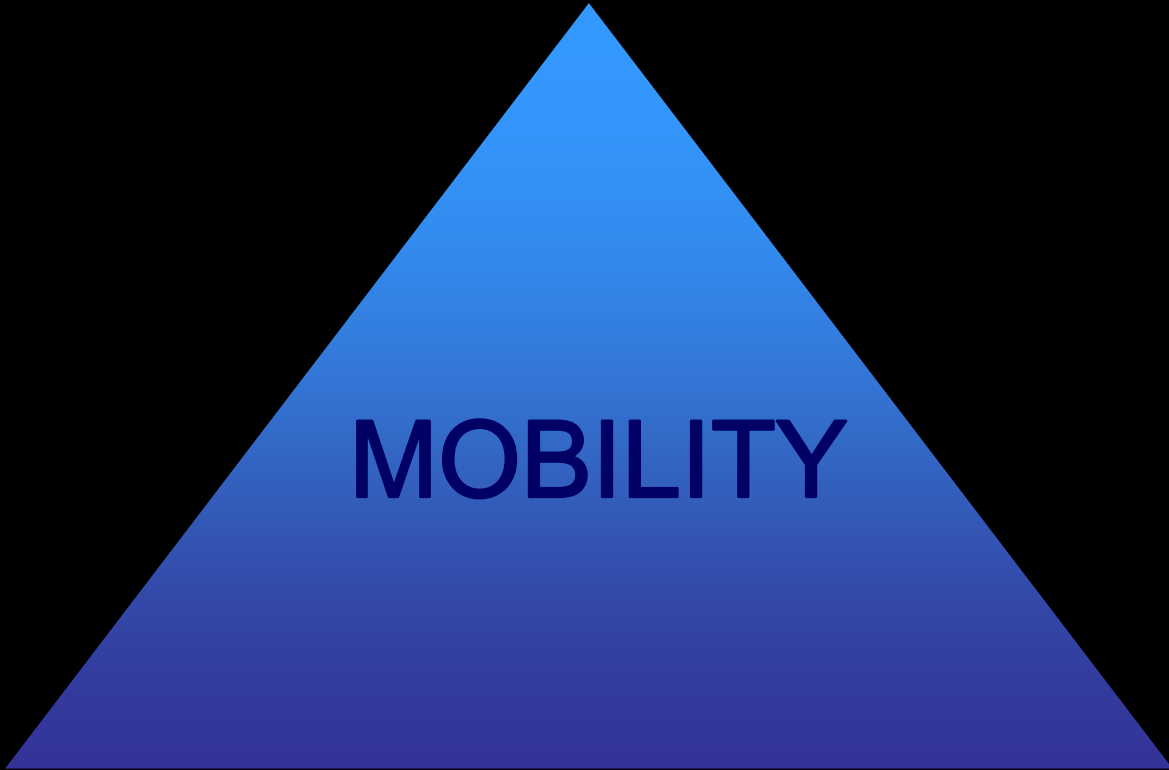
- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- We are making mobility unaffordable
- We are making our neighborhoods and communities unsafe and unhealthy

Travel

MOBILITY

Access

Circulation



Mobility Elements

Travel – Moving over distances

Circulation – Moving within areas

Access – Getting in the door

Built for...



Seattle



Redmond

...travel

Built for...

Denver



Boulder



...travel

Built for...



Flagstaff

...circulation

Redmond

Portland

Built for...



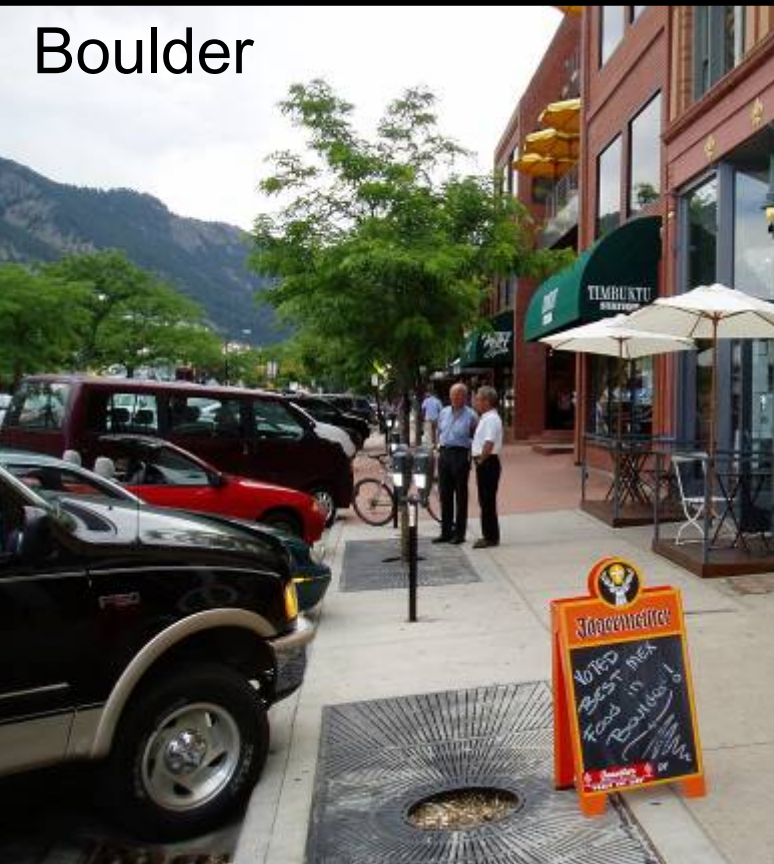
Boulder



...circulation

Built for...

Boulder



Winter Park, FL

...access



Built for...



Houston, TX

...access



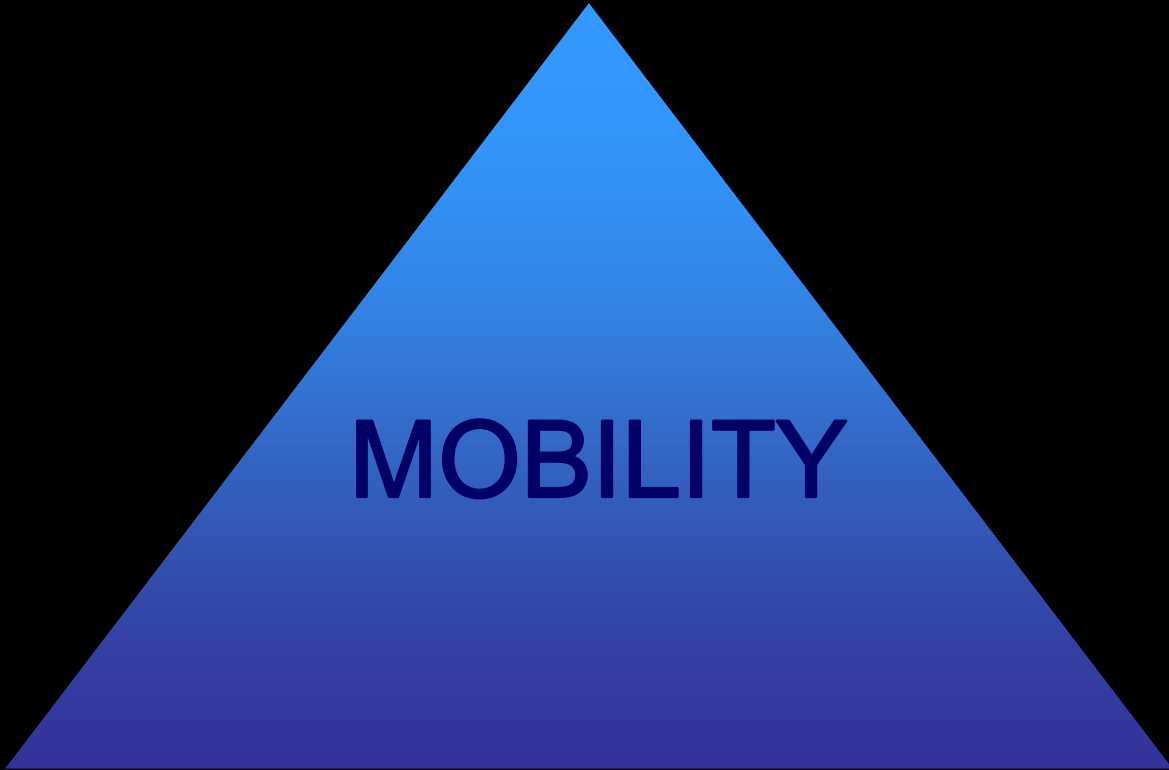
Minneapolis

Travel

MOBILITY

Access

Circulation

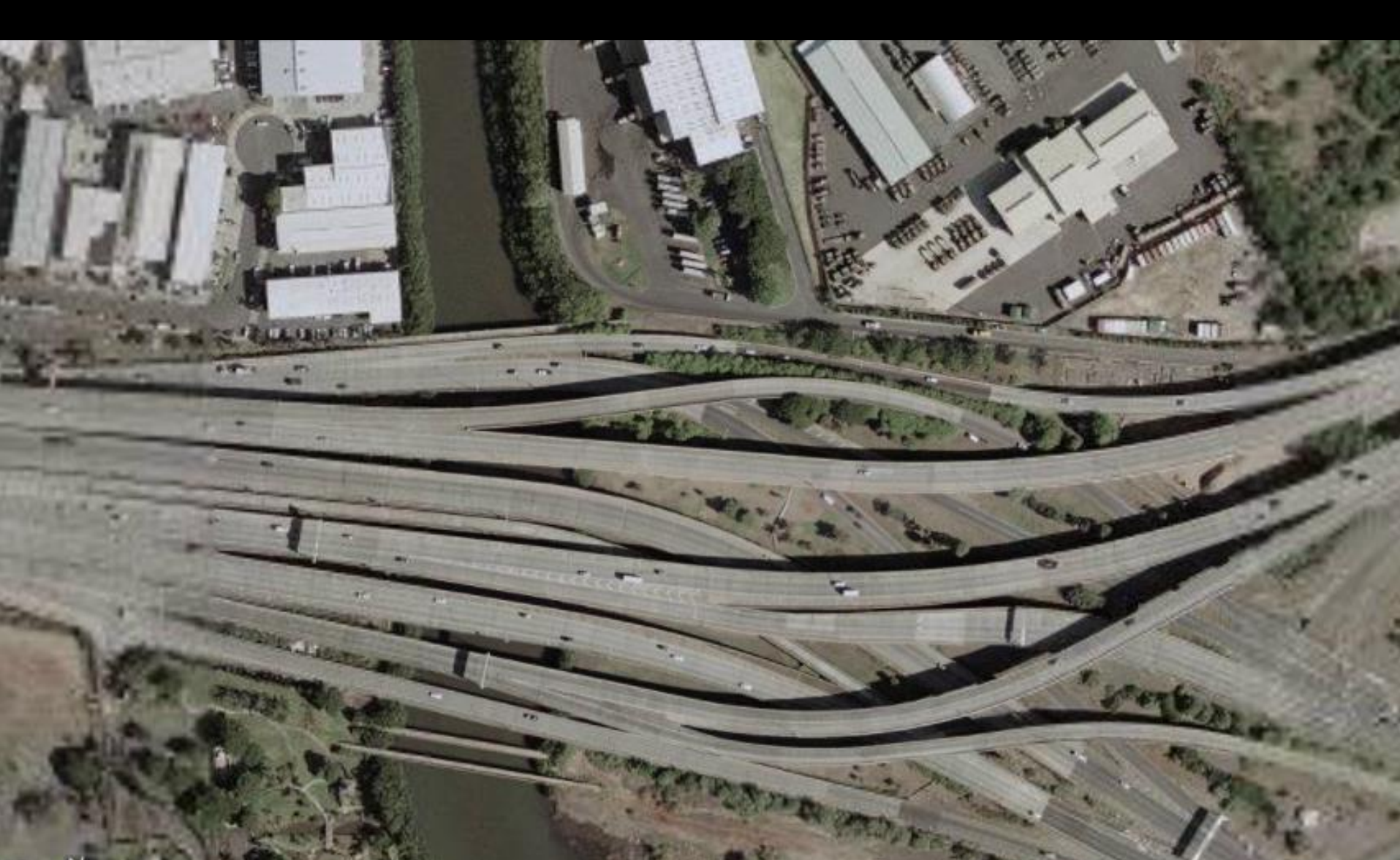




The federal approach has been to invest in travel enthusiastically, but to resist investing in circulation and access

Congress & US DOT

- The “national” interest is limited primarily to intercity & interstate travel
- We’ll also invest federal dollars in “congestion alleviation”



Freeways

05 Sanborn

Streaming ||||| 100%

©2005 Google

Eye alt 2029 ft

Tusayan, AZ

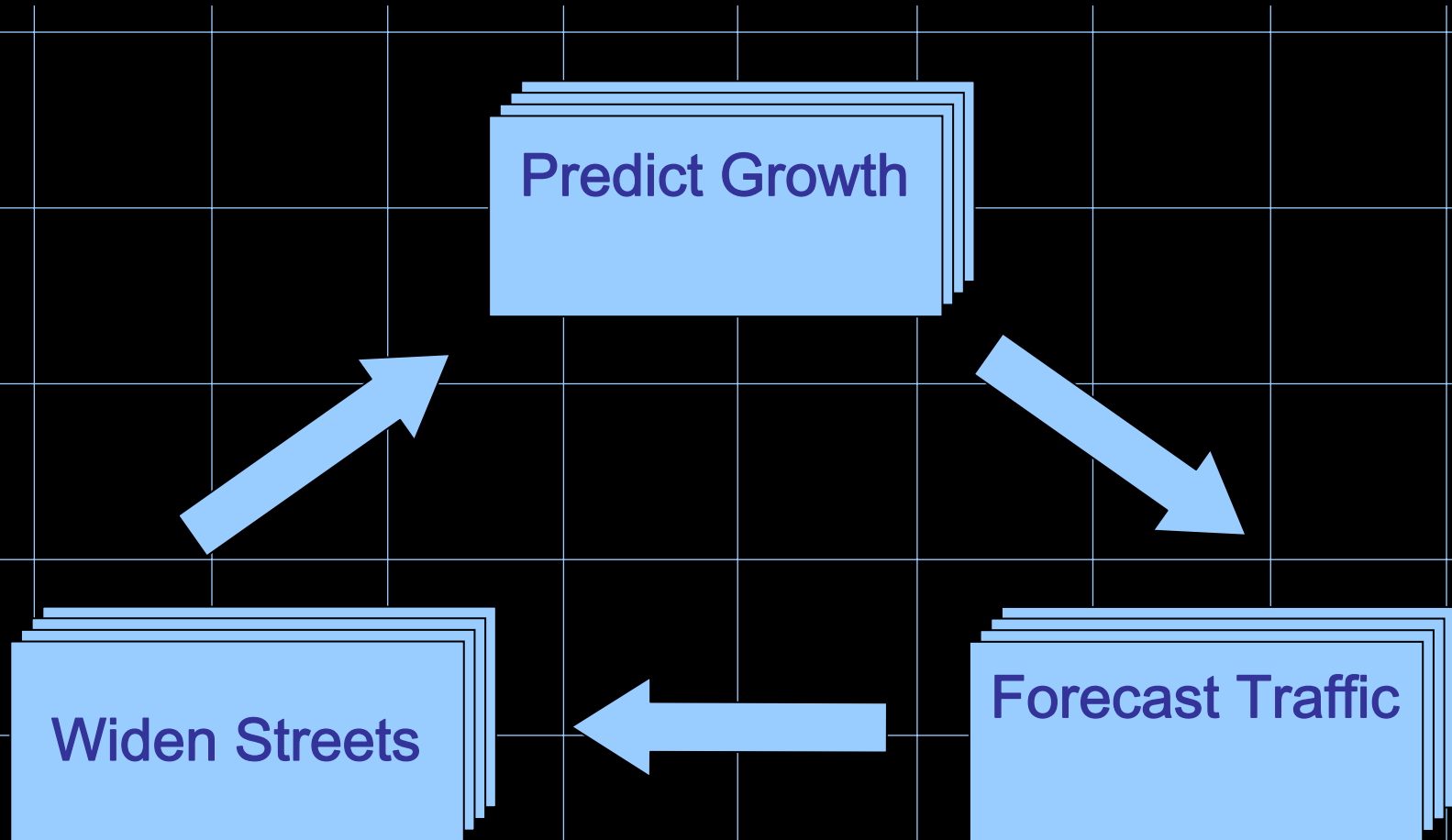
Arterials



So, what about
“congestion alleviation”



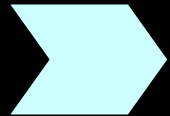
Have you ever noticed...?



Rational Transportation “Planning”

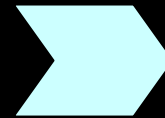
1.

What do
we
want?



2.

How
much
traffic
will there
be?



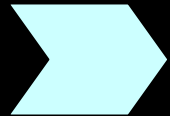
3.

What
should
we do?

Actual Transportation “Planning”

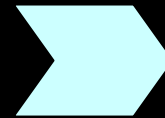
1.

What do
we
want?



2.

How
much
traffic
will there
be?



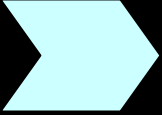
3.

What
should
we do?

Actual Transportation “Planning”

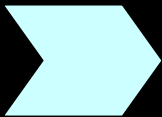
1.

How
much
traffic
will there
be?



2.

What
should
we do?



3.

What do
we get?

Induced Traffic



Types of Induced Traffic

Changes in travel route Immediate

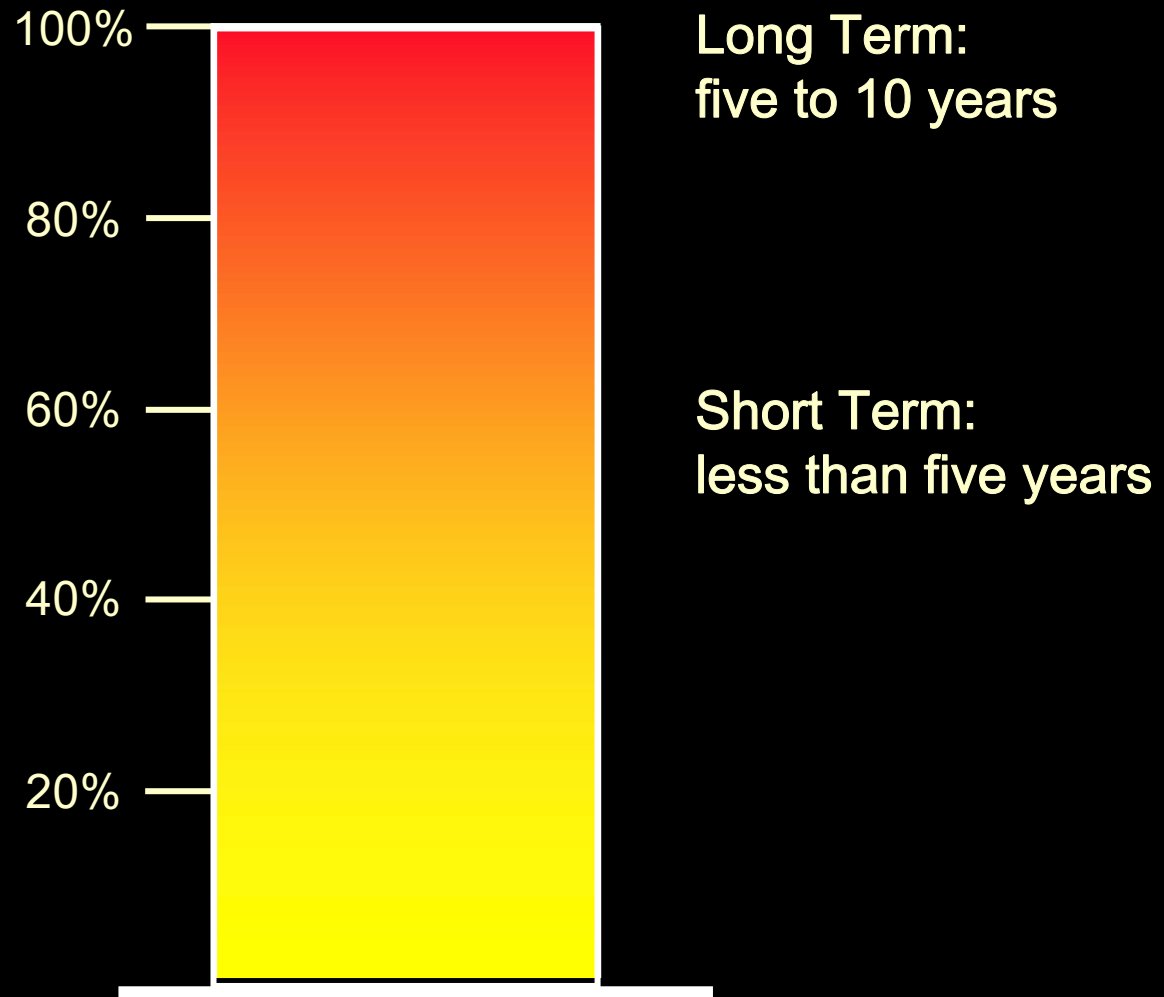
Changes in mode of travel < 6 months

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...

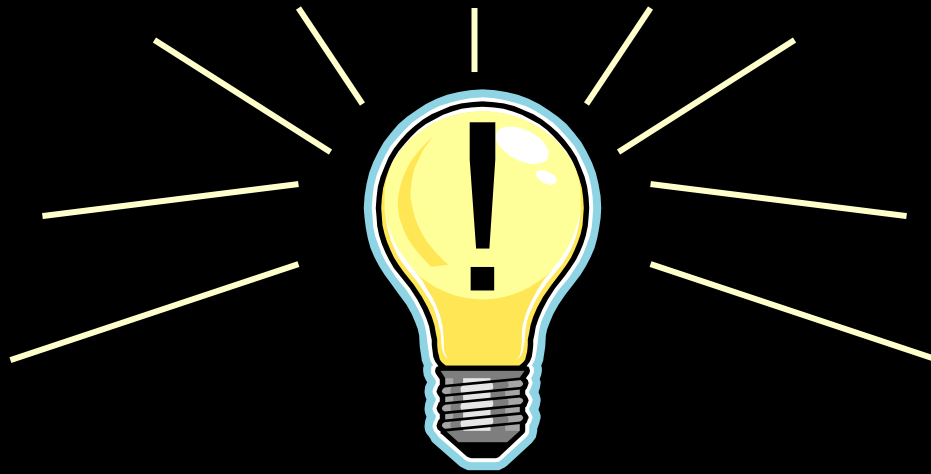




If you build it . . .
. . . they will come



If you build it . . .
. . . they will come



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

“Project & Provide”

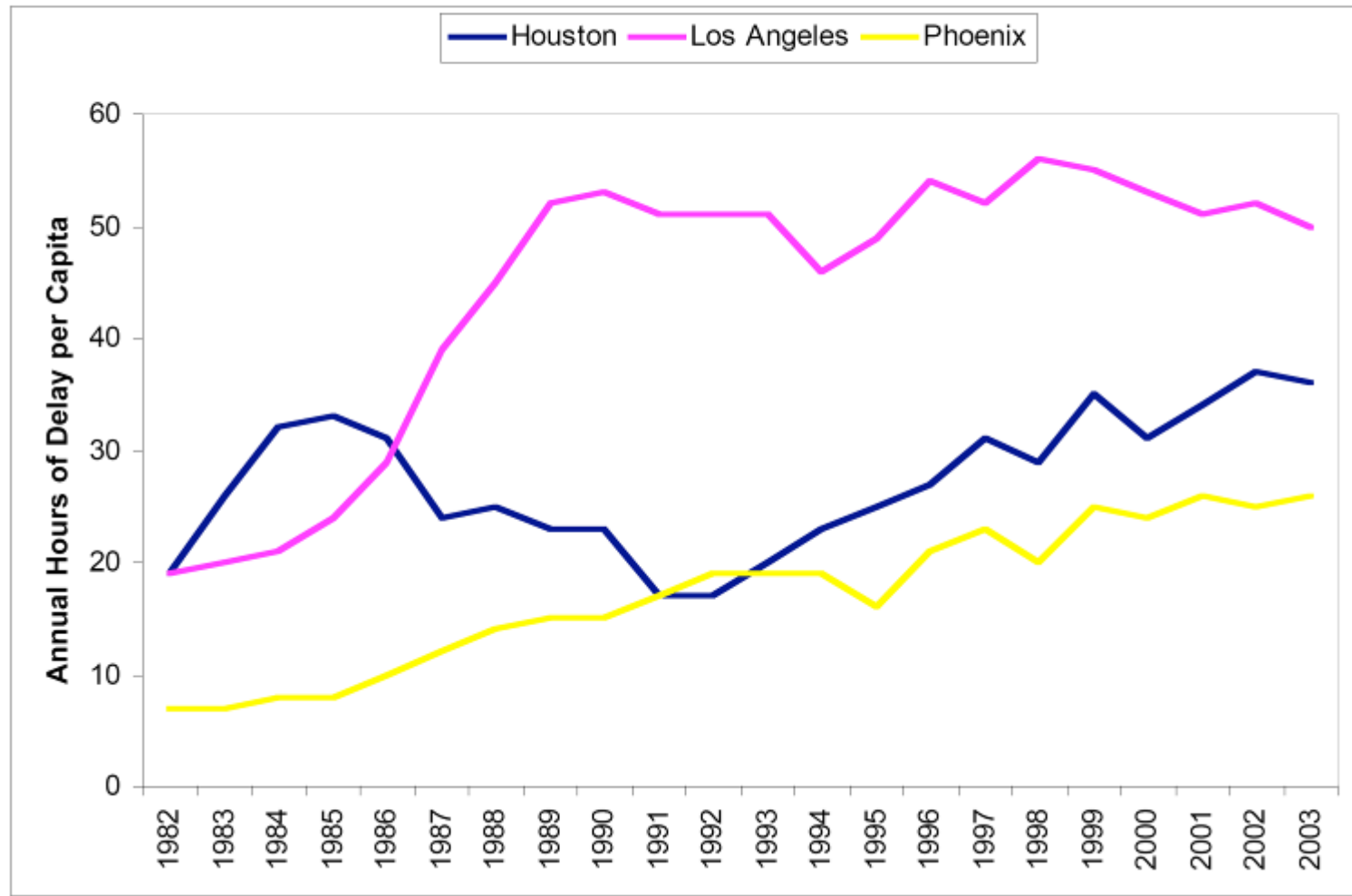
Effects of “Project & Provide”

- High rates of driving & vehicle ownership
- High risk of accidents
- Lower rates of walking
- Higher levels of air pollution, esp. ozone
- High levels of GHG emissions
- **No reduction in congestion delay**

Road Building Has Not Reduced Delay

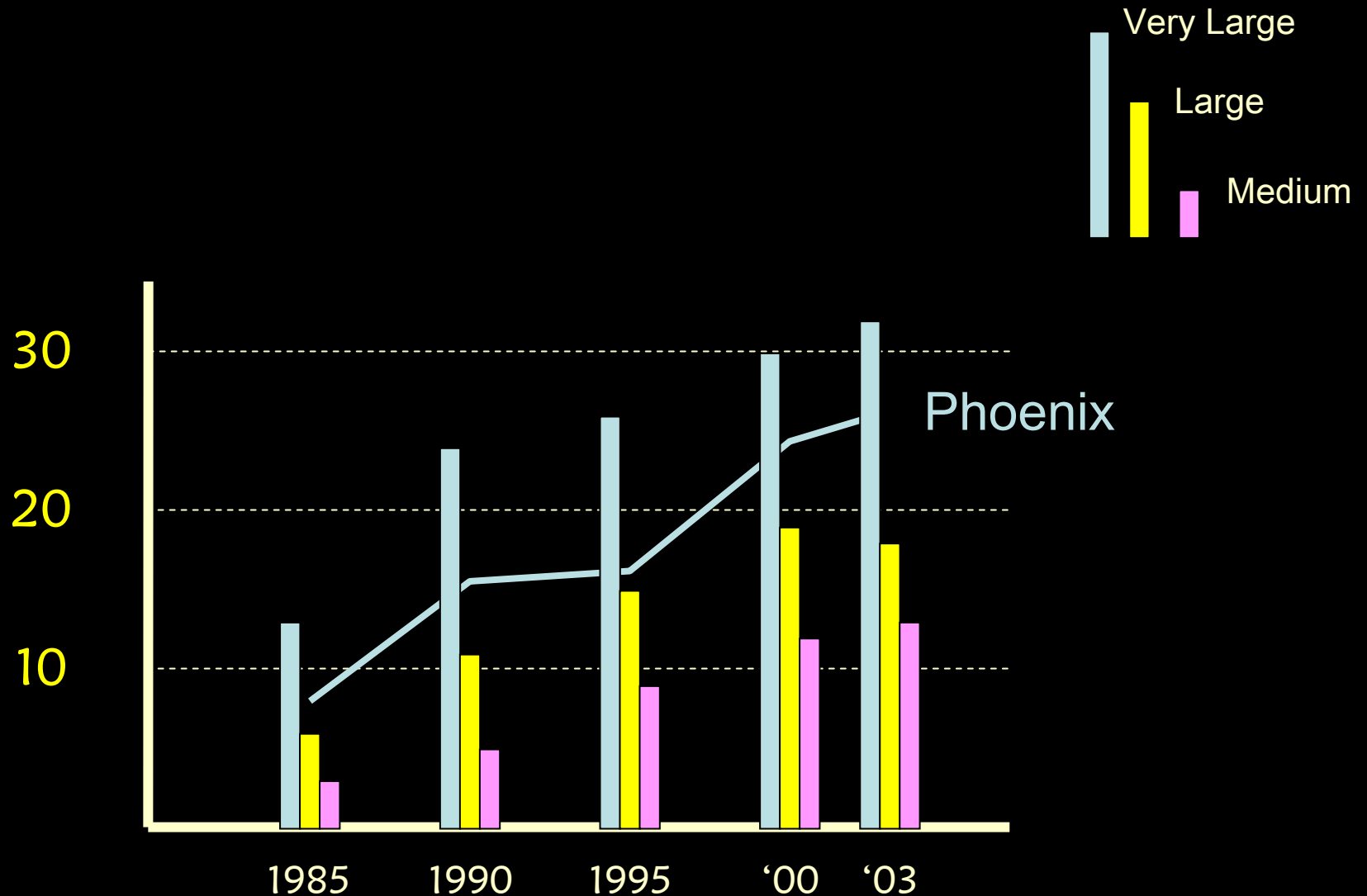
Figure 1-6 Growth of Annual Hours of Delay per Capita

Source: Schrank and Lomax 2005.



United States

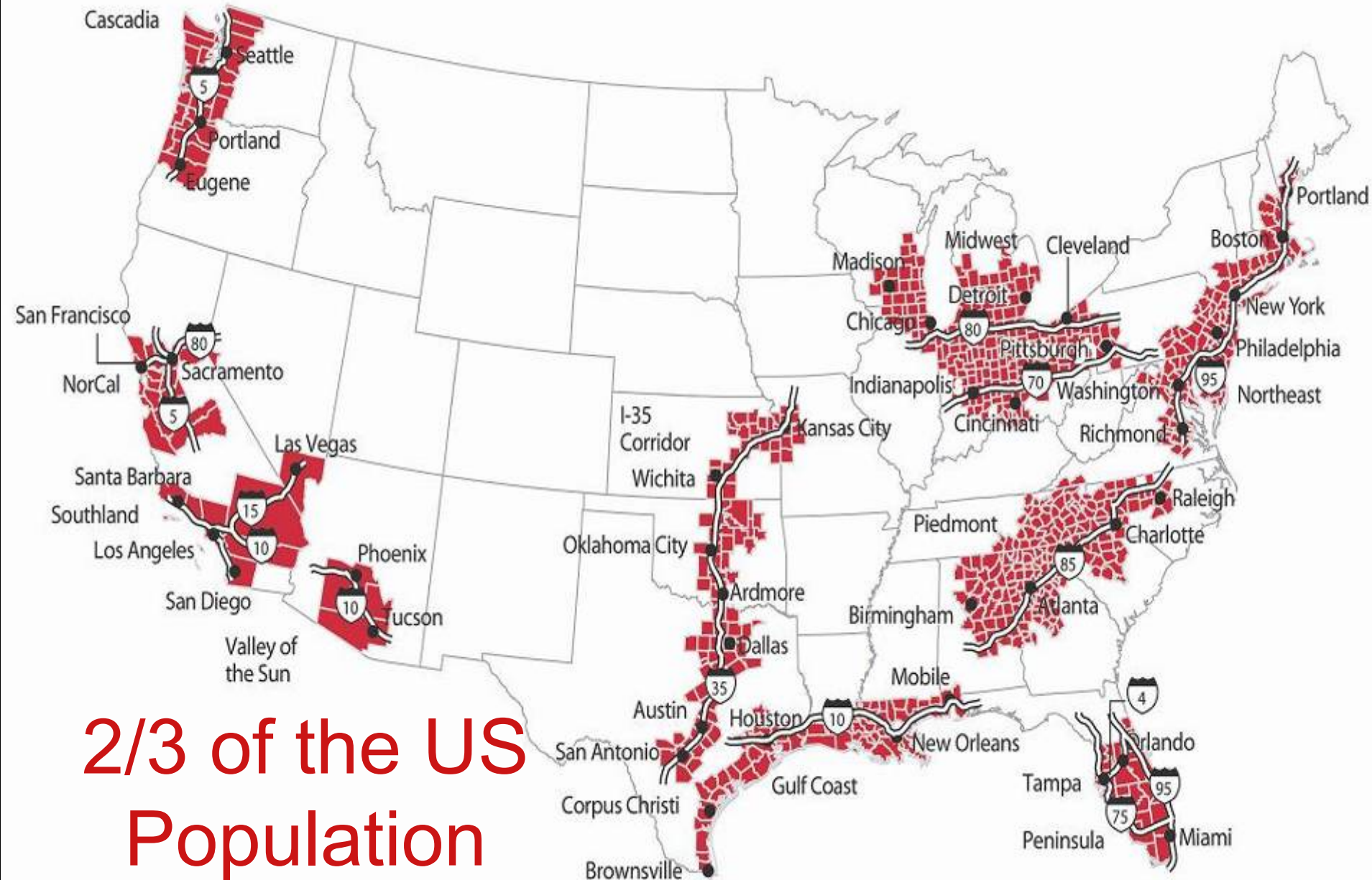
Per Capita Traffic Delay (person hours)



What we've learned about “congestion alleviation” -

1. Traffic Forecasting \neq Planning
2. Congestion Alleviation = More Traffic

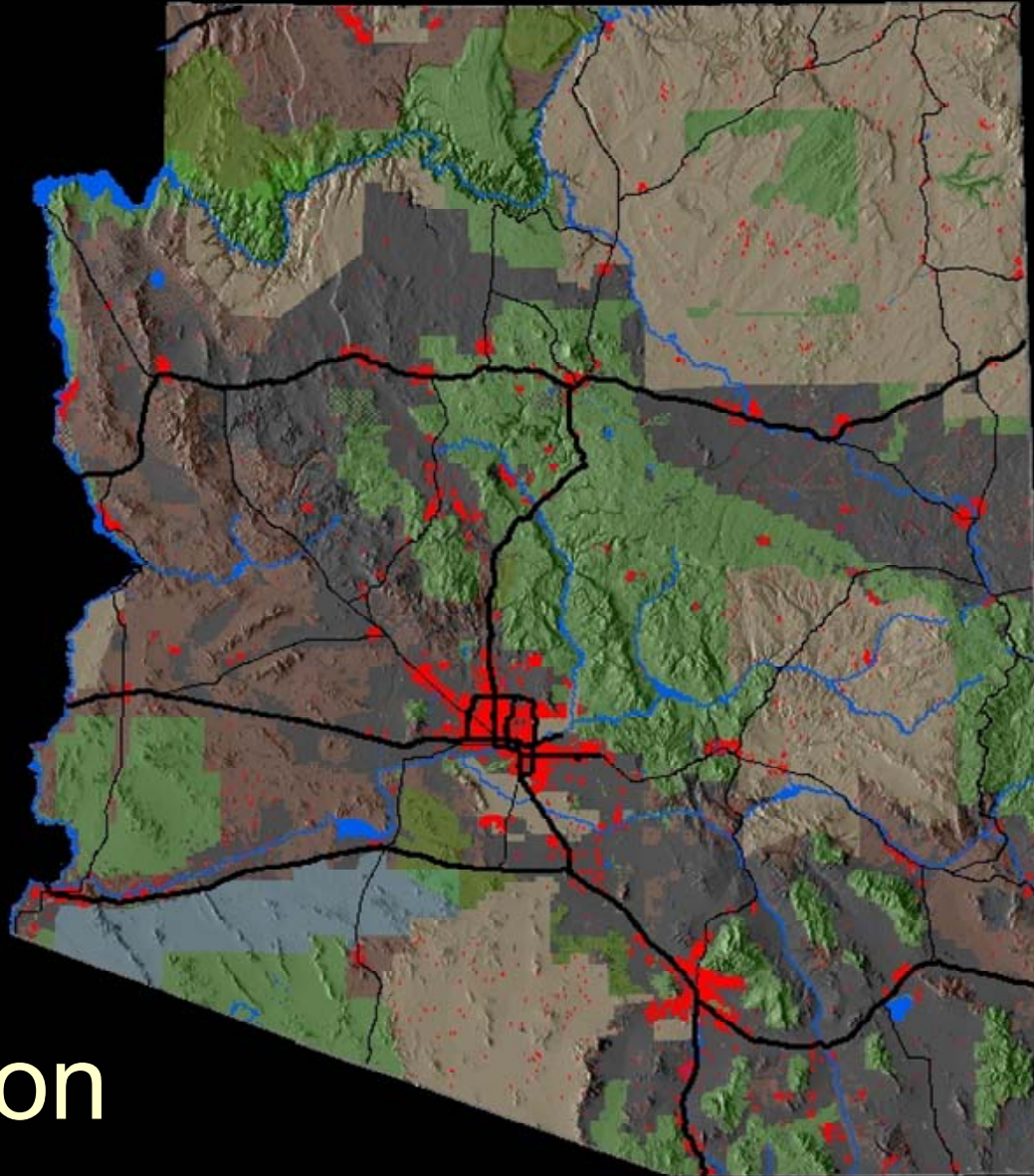
Emerging Megapolitan Regions



State Example: Arizona

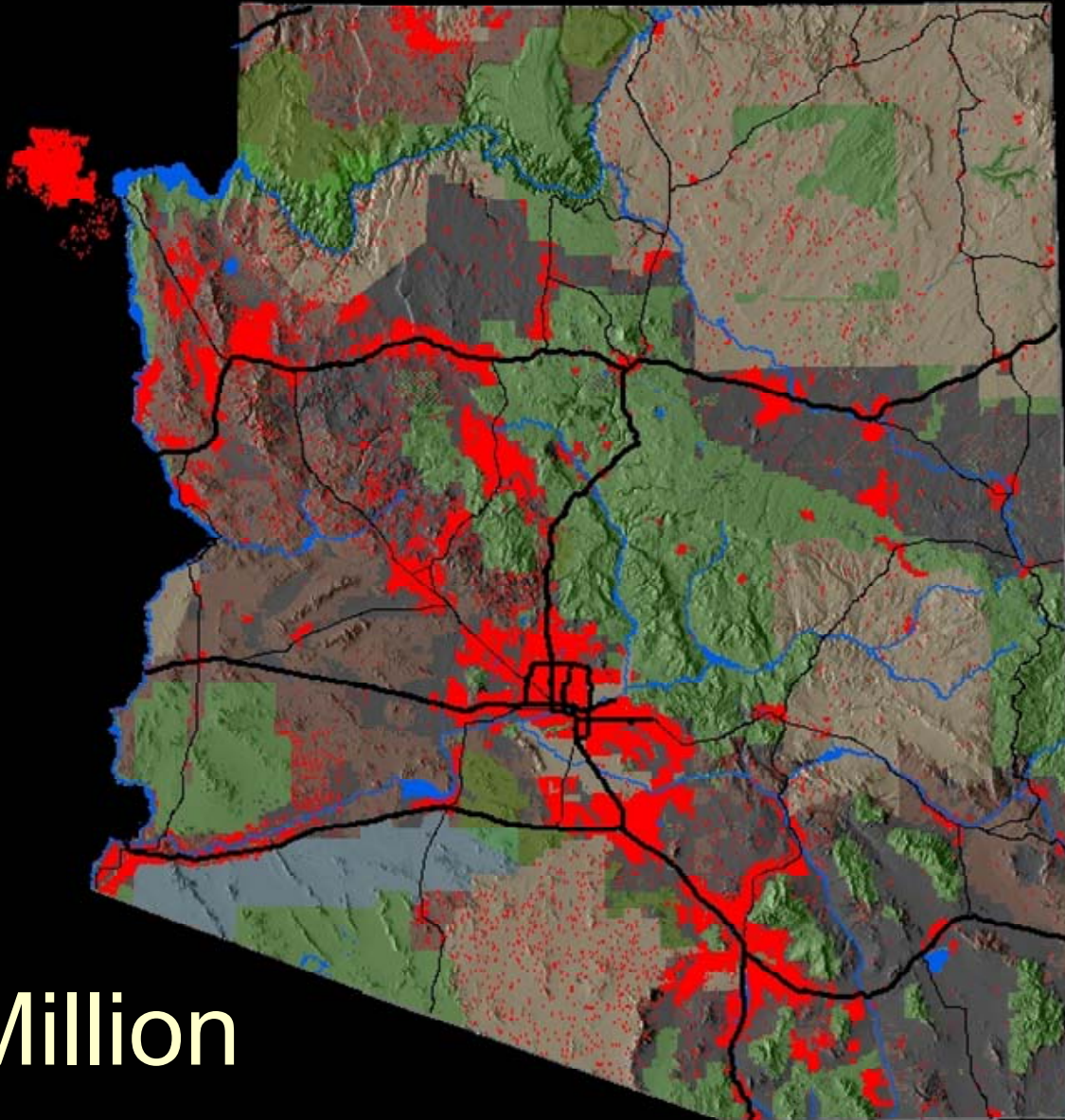


2000

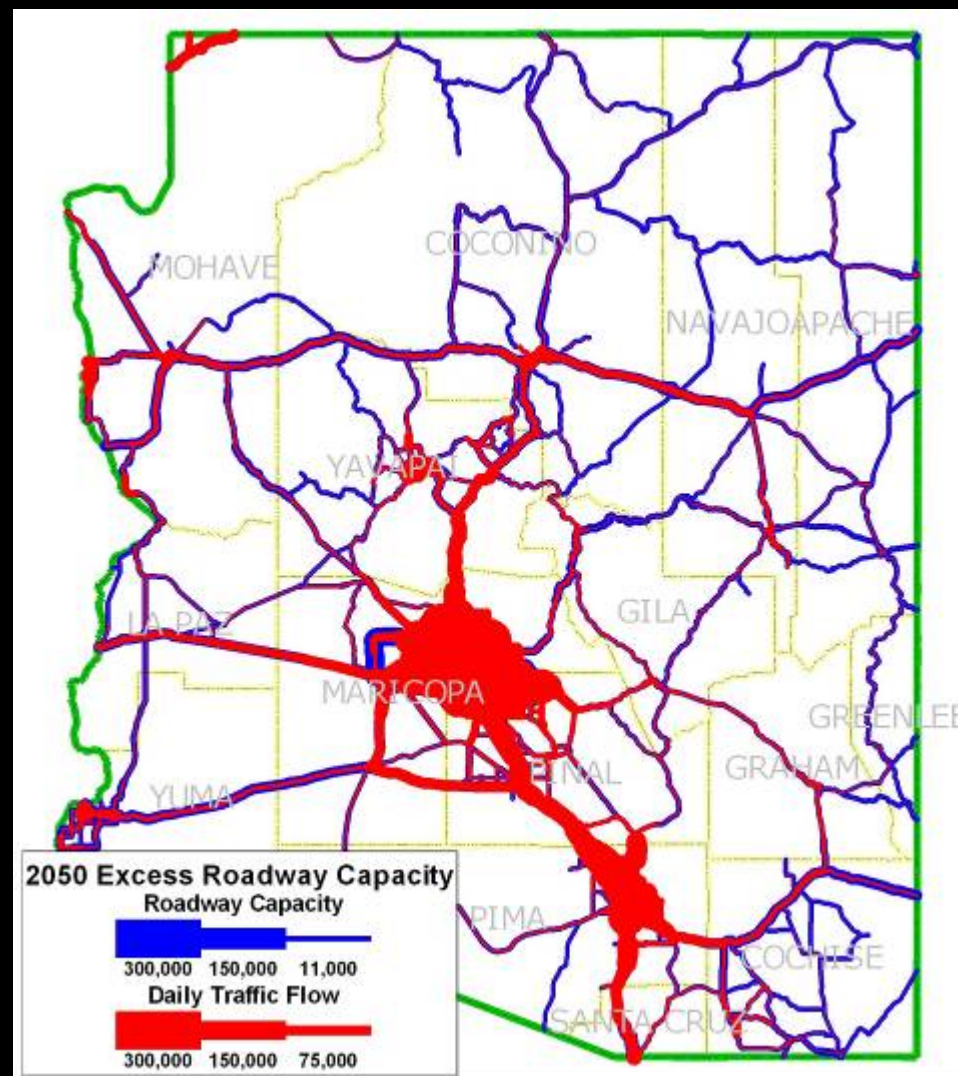
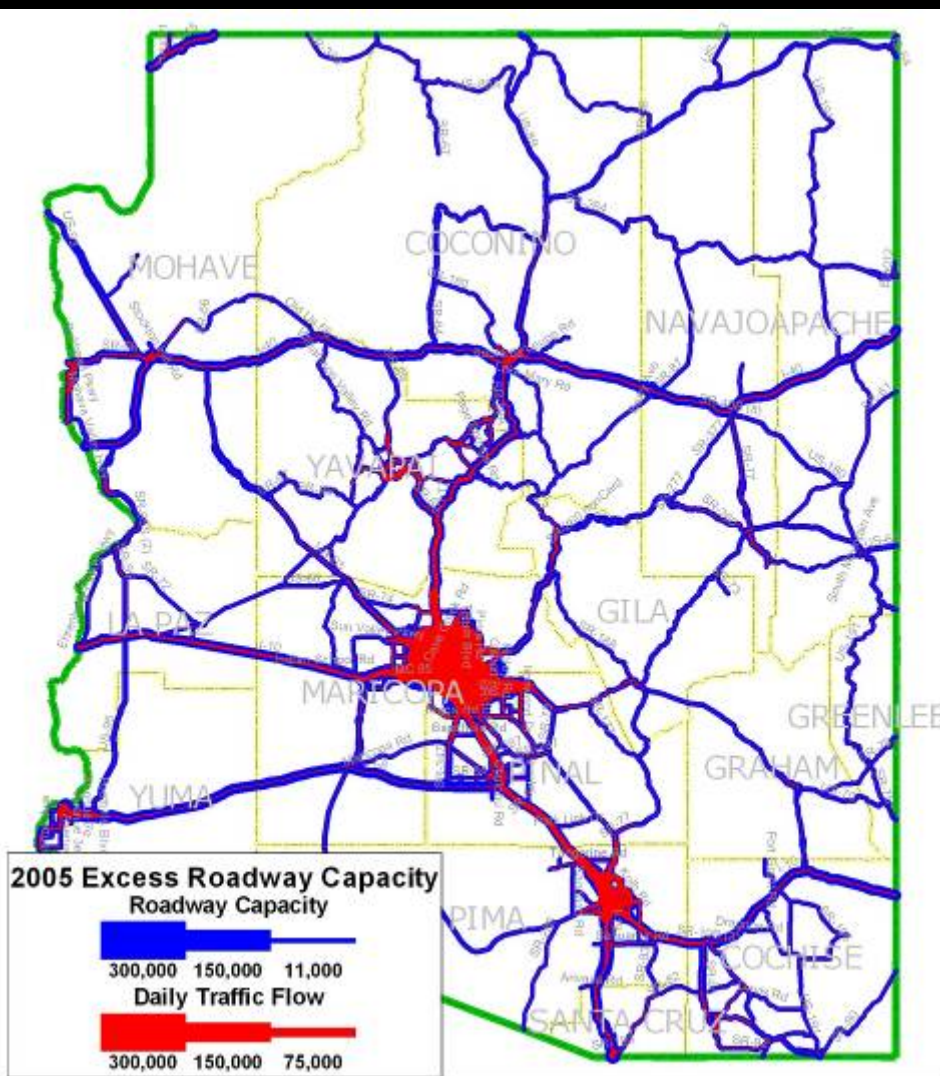


5.1 Million
People

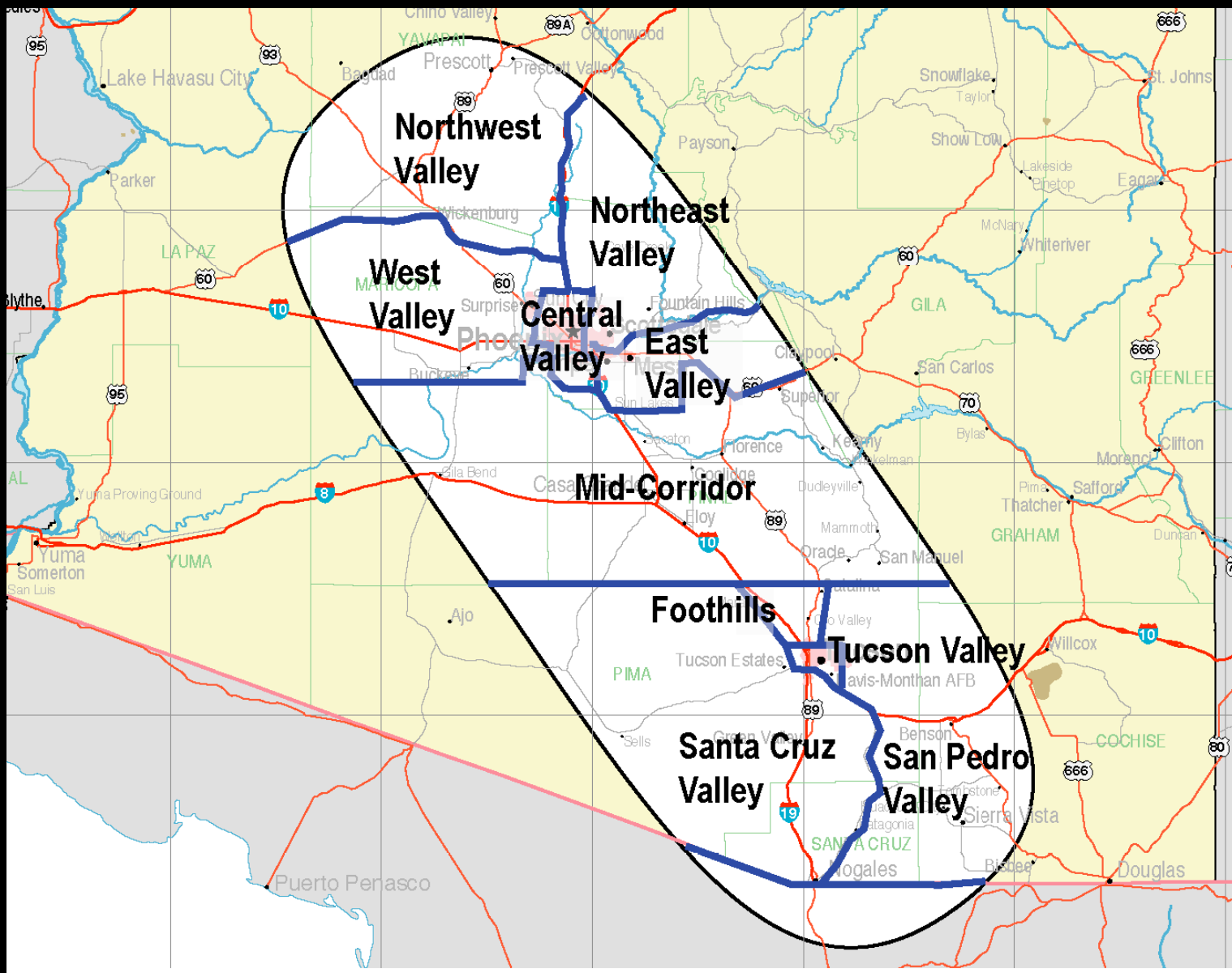
2050



14.1 Million
People



Arizona Sun Corridor



State Example: Florida





FLORIDA 2060

A Research Project of 1000 Friends of Florida

Existing Developed Lands and Permanent Conservation Lands

17.9 Million
People



2060 Developed Lands and Permanent Conservation Lands

35.8 Million
People



Florida 2060: A Research Project of 1000 Friends of Florida

In our urban states, we will not be
able to accommodate growth
through infill & redevelopment

We now have to accept that we will
develop vast new areas of land
through...
urbanization or suburbanization?

For 60 years, we have increased
travel, but reduced mobility

We cannot do that for another
60 years

Impact on Communities

- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- We are making mobility unaffordable
- We are making our neighborhoods and communities unsafe and unhealthy

Impact on Communities

- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- We are making mobility unaffordable
- We are making our neighborhoods and communities unsafe and unhealthy



3 Effects (The Triple Whammy)

1. Over expansion of urban arterials
2. Extension of roadway capacity into and through rural areas
3. Over reliance on state (federal) arterial corridors for circulation & access

Whammy # 1. Over-Expansion of Urban Arterials

The Triple Whammy

Somewhere near you







Lakewood, CO





Boulder



Longmont



Brooklyn



Portland

Anywhere, USA



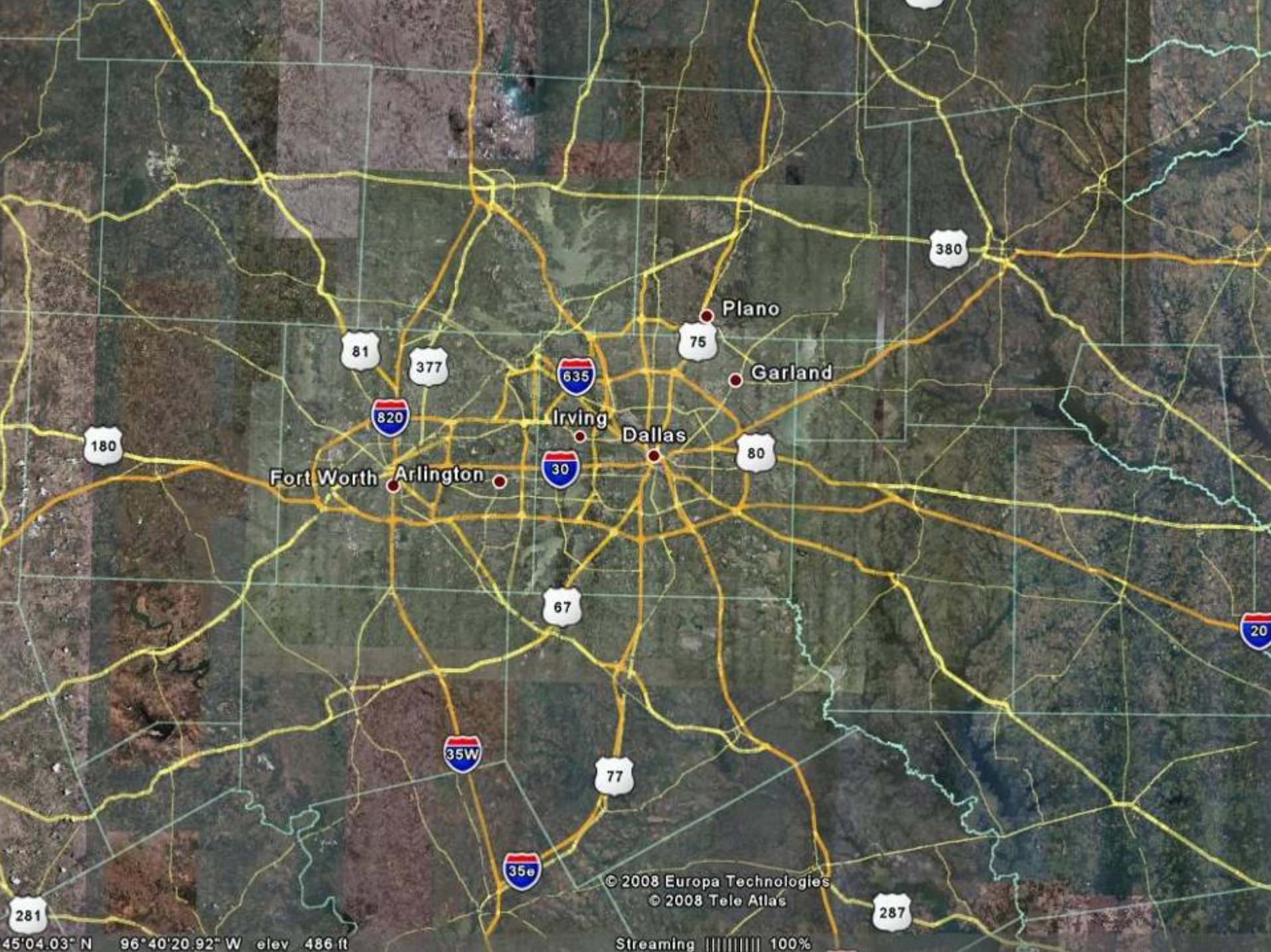
Triple Whammy

1. Over Expansion of Urban Arterials

- Blighted abutting properties and neighborhoods
- Our cities and towns now must try to redevelop thousands of miles of decayed urban tissue

Whammy 2. Extension of Roadway Capacity Into and Through Rural Areas

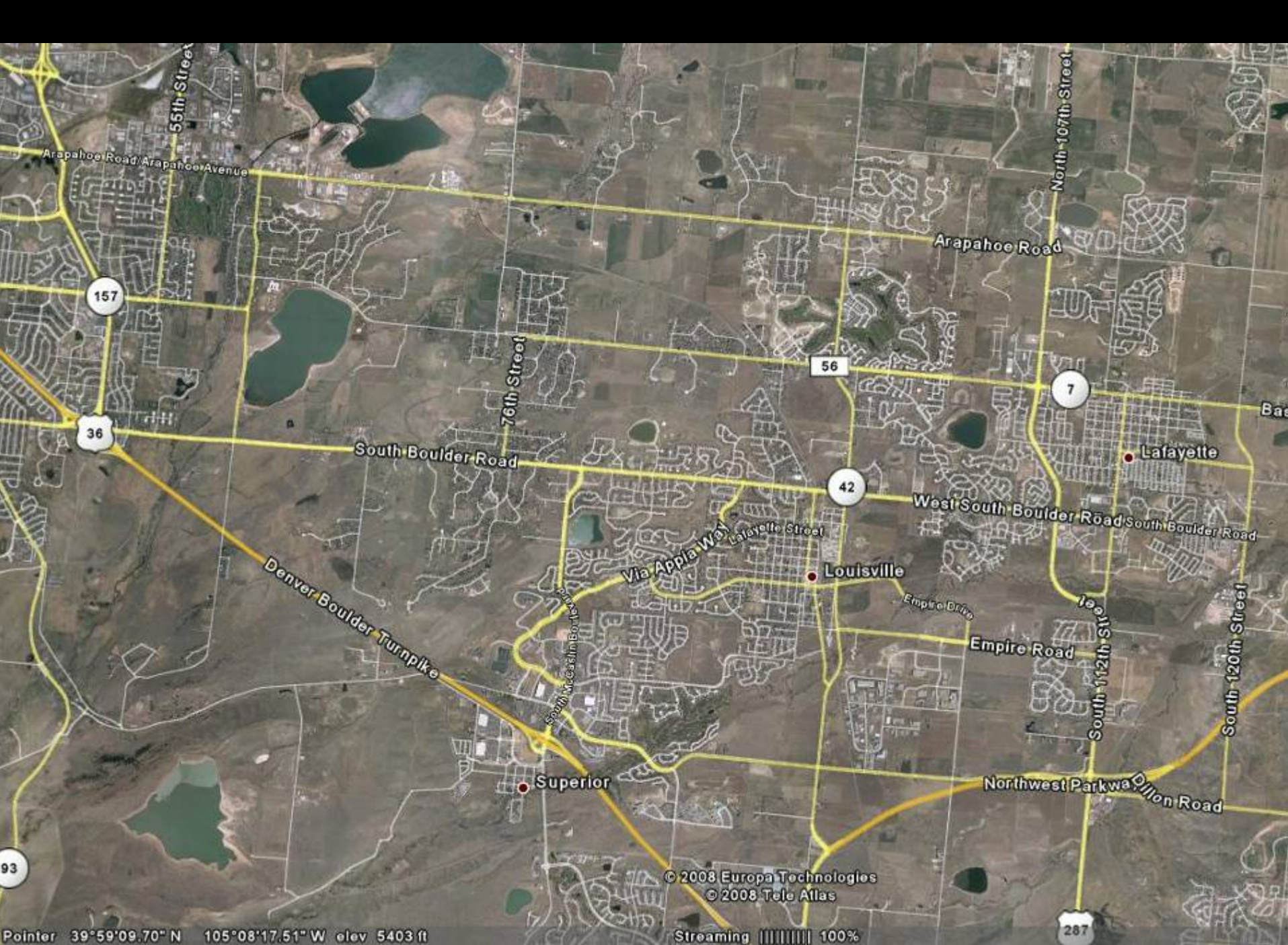
The Triple Whammy

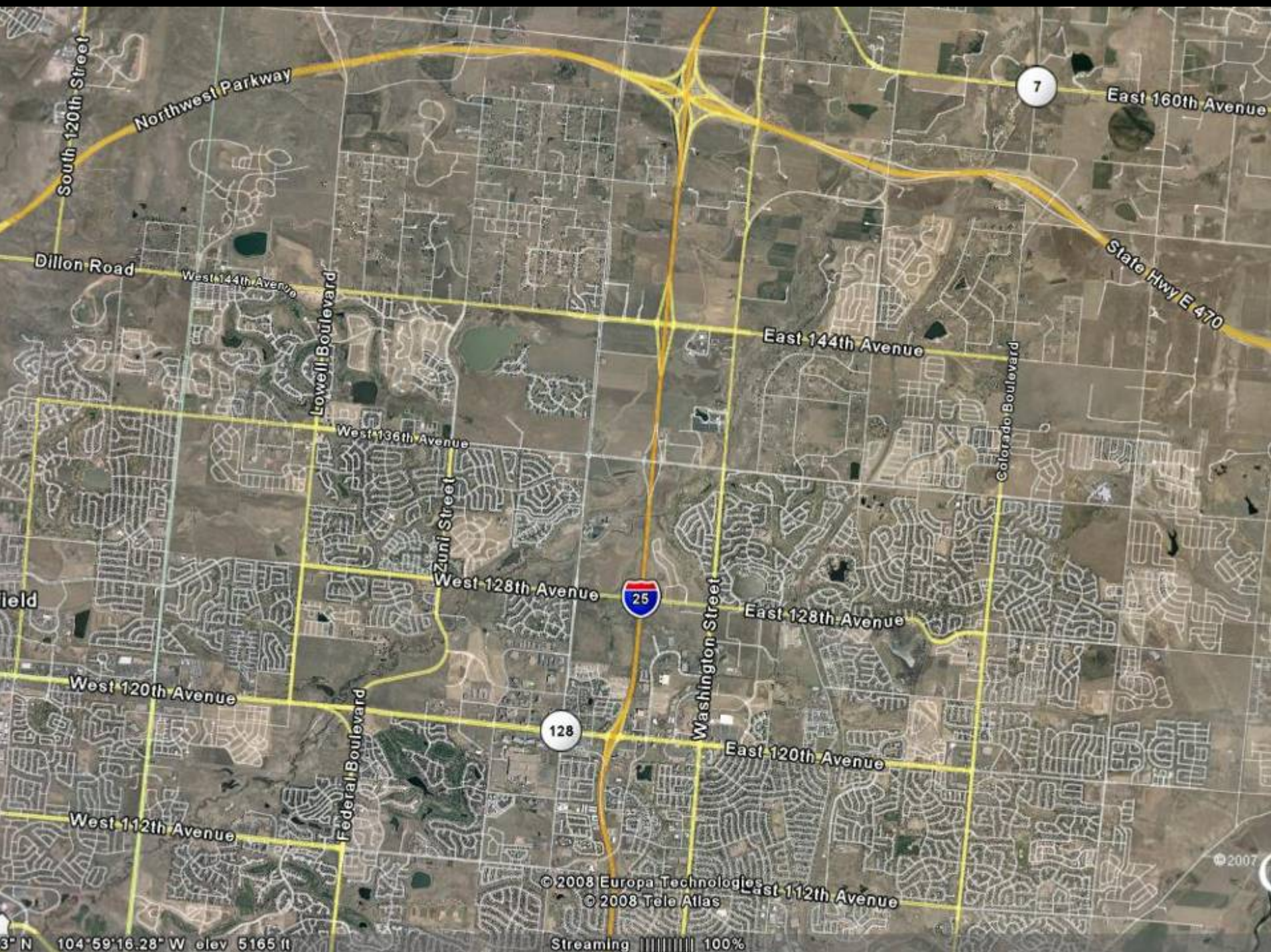


45°04.03' N 96°40'20.92' W elev 486 ft

© 2008 Europa Technologies
© 2008 Tele Atlas

Streaming ||||| 100%





South-120th Street

Northwest Parkway

7

East 160th Avenue

Dillon Road

West 144th Avenue

Lowell Boulevard

East 144th Avenue

State Hwy E 470

Colorado Boulevard

West 136th Avenue

Zuni Street

West 128th Avenue

25

East 128th Avenue

field

West 120th Avenue

128

Washington Street

East 120th Avenue

West 112th Avenue

Federal Boulevard

East 112th Avenue

© 2008 Europa Technologies
© 2008 Telo Atlas

© 2007

3° N 104° 59' 16.28" W elev 5165 ft

Streaming 100%



Driggs, ID

North of Driggs, ID

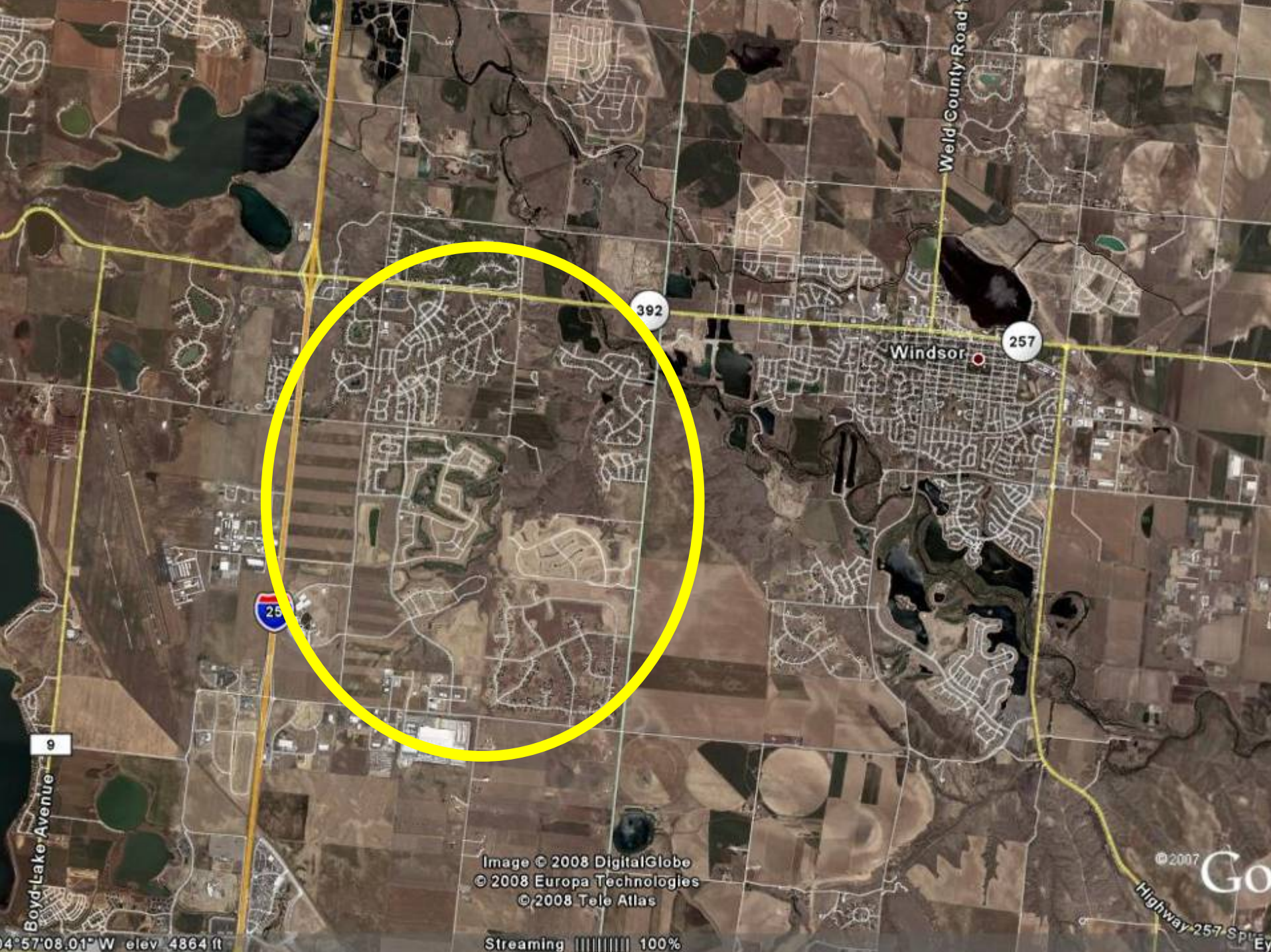


2. Extension of Roadway Capacity Into and Through Rural Areas

- Sucked economic vitality out of existing cities and towns
- Subsidized sprawl into rural areas with no growth management systems

Whammy 3. Over-Reliance on State (Federal) Arterial Corridors for Circulation and Access

The Triple Whammy



Weld County Road

392

257

Windsor

25

9

Boyd Lake Avenue

Image © 2008 DigitalGlobe
© 2008 Europa Technologies
© 2008 Tele Atlas

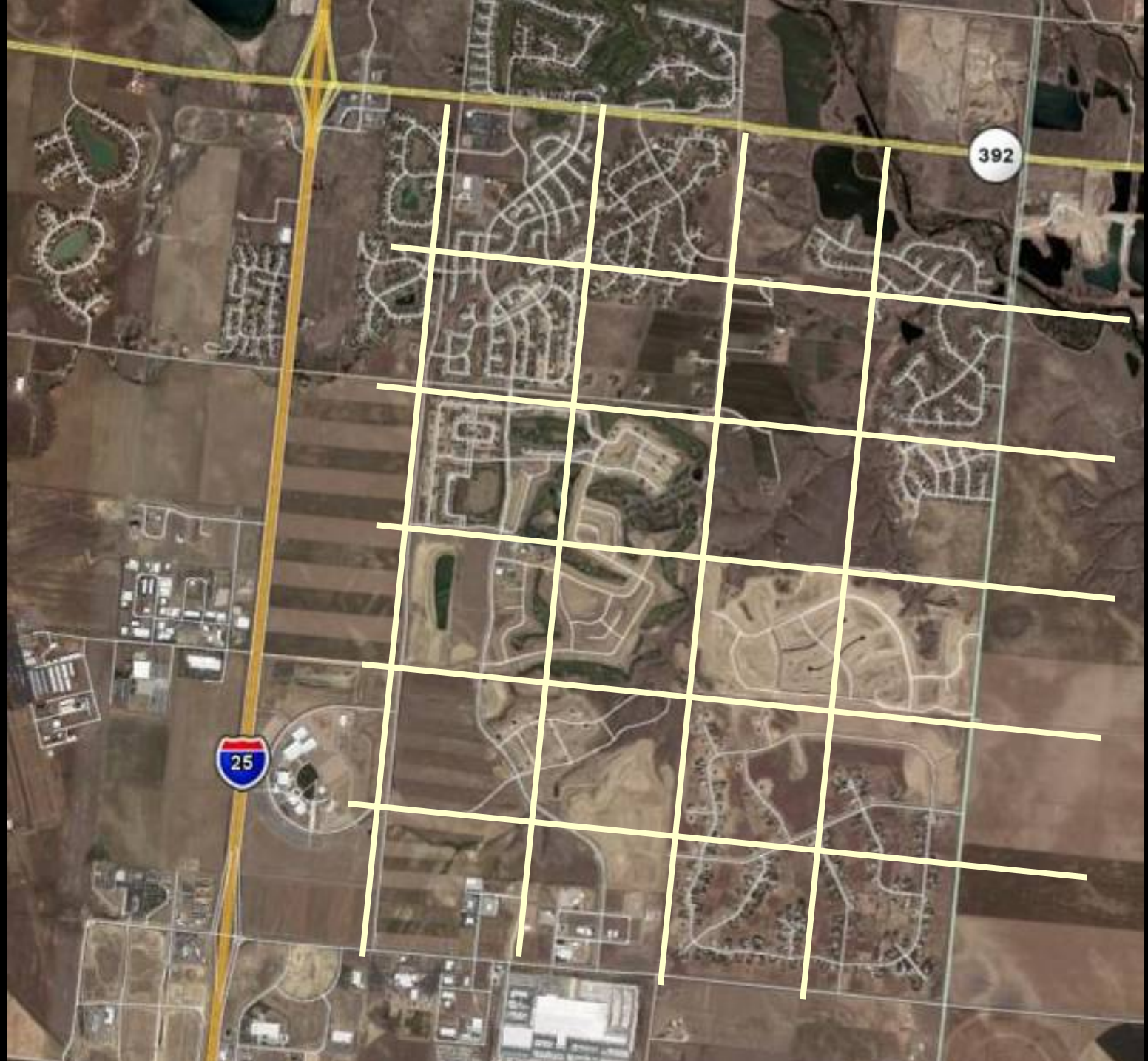
Streaming 100%

© 2007

Go

Highway 257 Spur E

4°57'08.01" W elev 4864 ft



3. Over-Reliance on State (Federal) Arterial Corridors

- Discouraged development of local roads and street networks
- Encouraged “pod” style development
- Created a lack of connectivity that will take decades to correct (if ever)

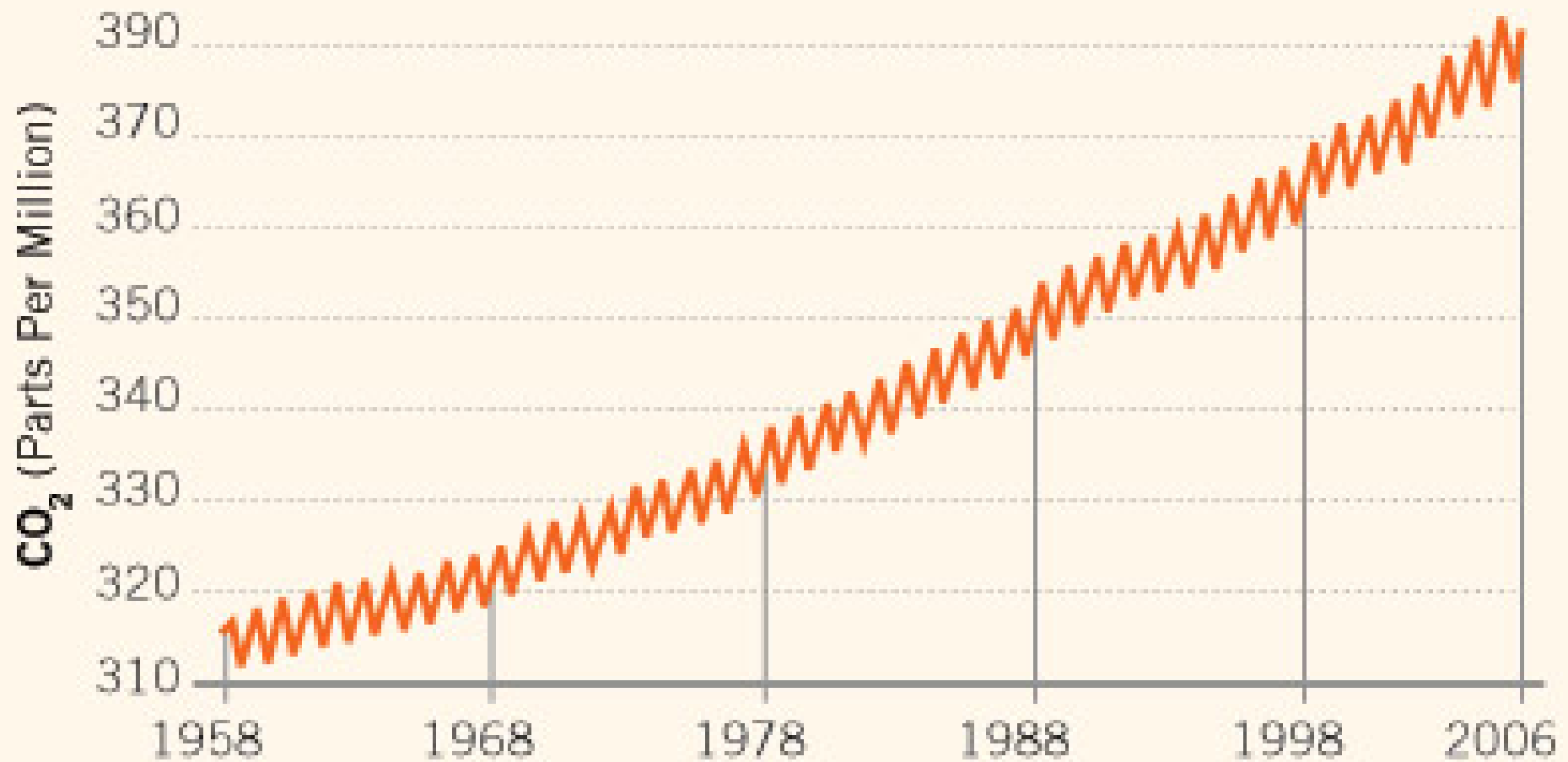
Impact on Communities

- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- We are making mobility unaffordable
- We are making our neighborhoods and communities unsafe and unhealthy

Impact on Communities

- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- We are making mobility unaffordable
- We are making our neighborhoods and communities unsafe and unhealthy

The Keeling Curve



SOURCE: Scripps Institute of Oceanography

Stranded Polar Bears

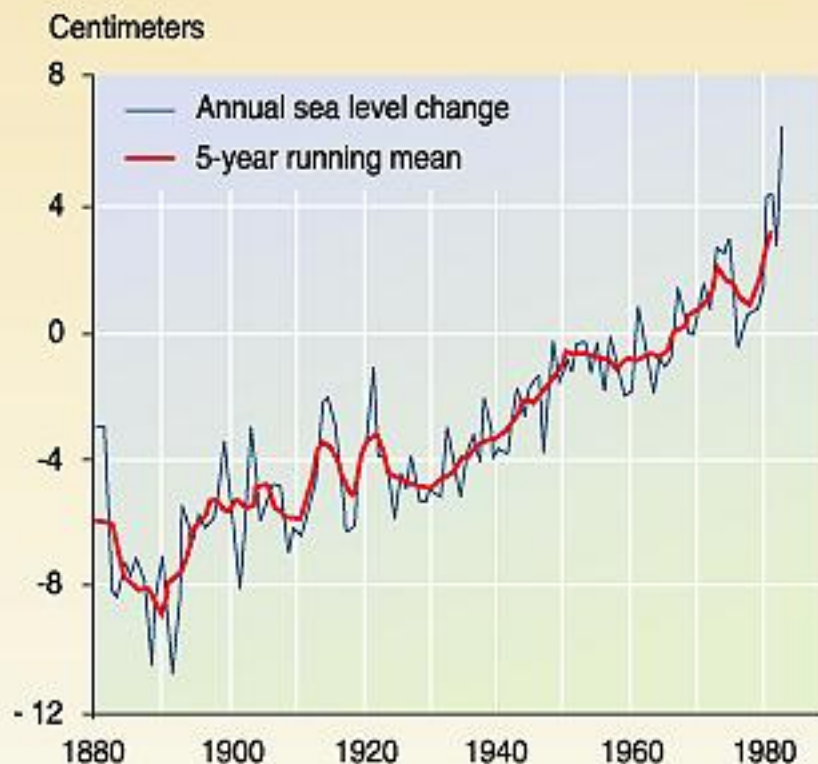




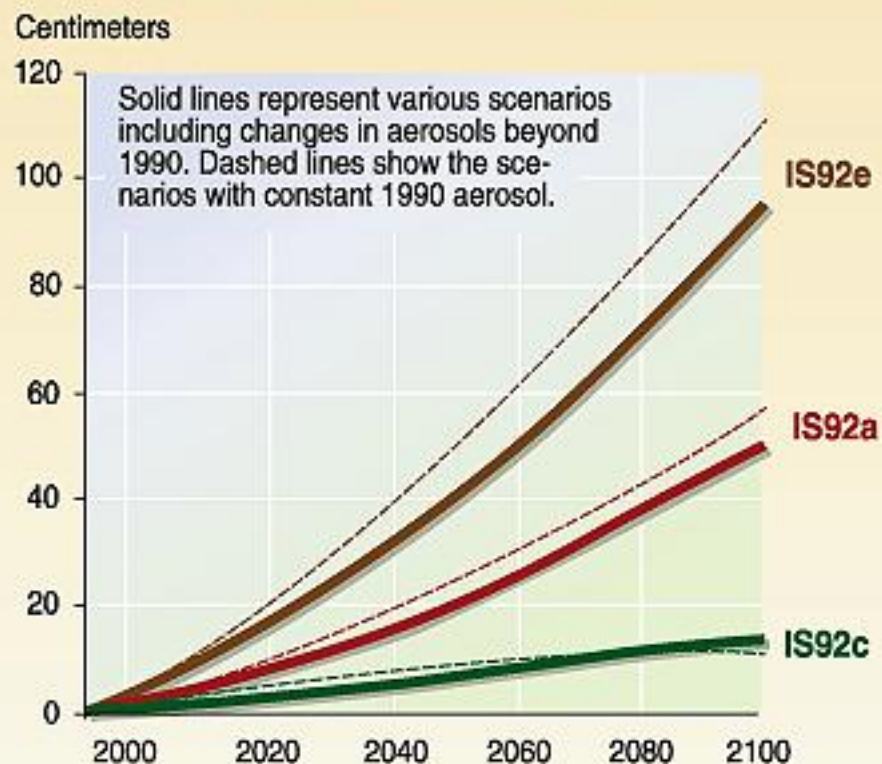
Receding Glaciers

Sea level rise due to global warming

Sea level rise over the last century



Sea level rise scenarios for 2100



Summary: Climate Change 1

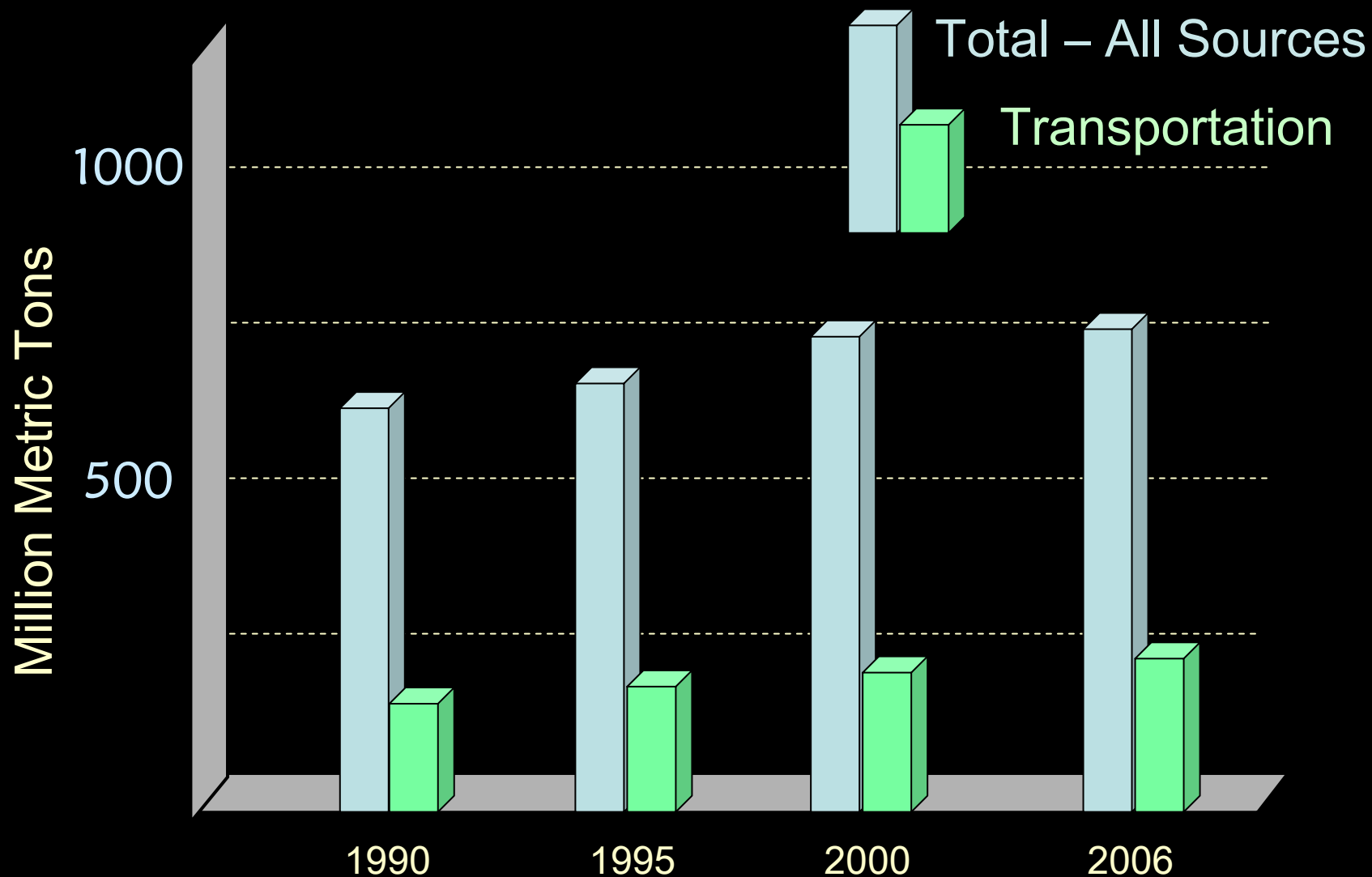
- Greenhouse gases associated with human activities are contributing to global warming with potentially serious consequences

Summary: Climate Change 2

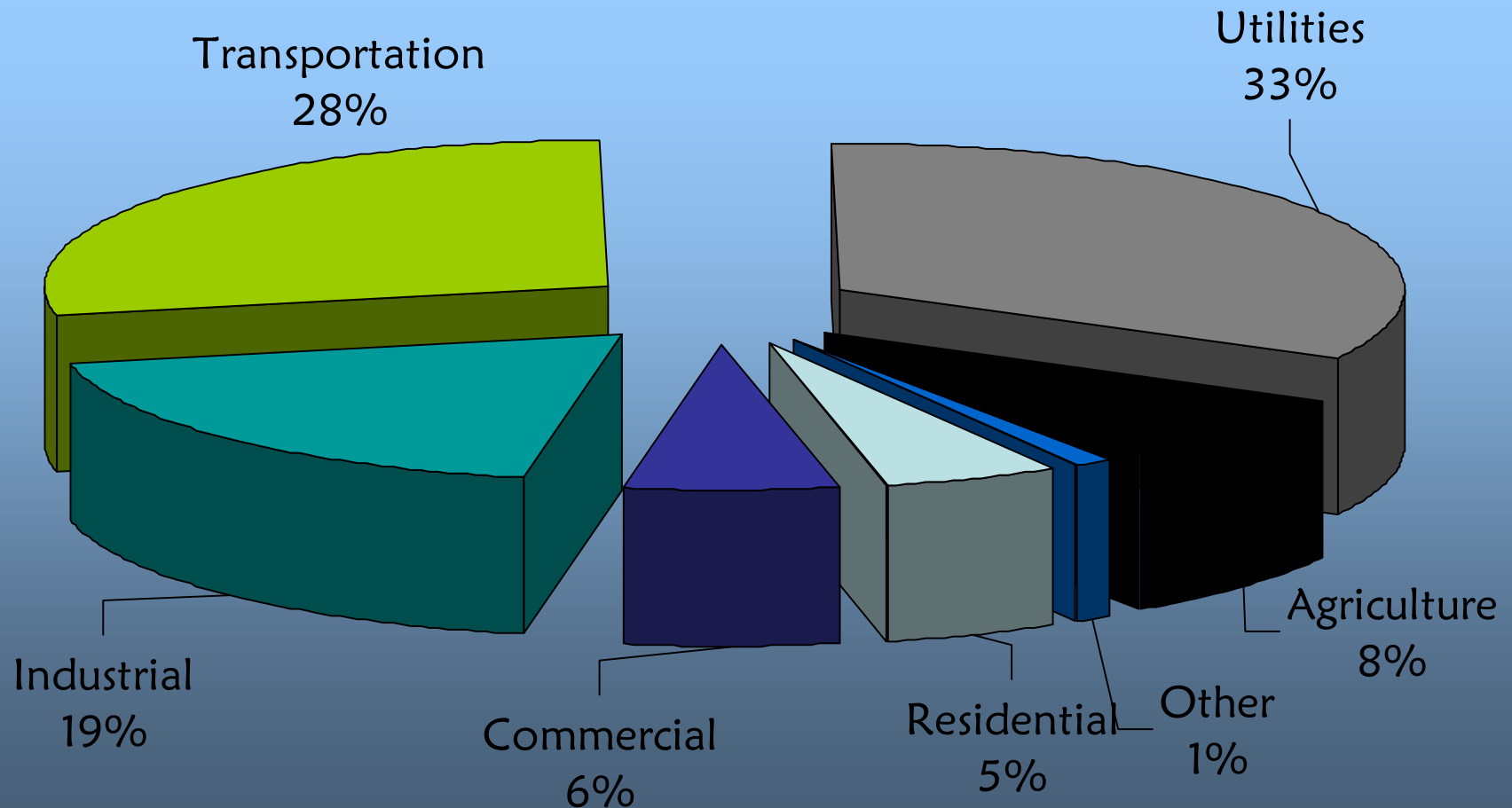
- Scientific consensus:
 - We must limit global temperature increases to no more than 2° to 3° C
 - To do that we must cut GHG emissions by 60% to 80% below 1990 levels by 2050

United States

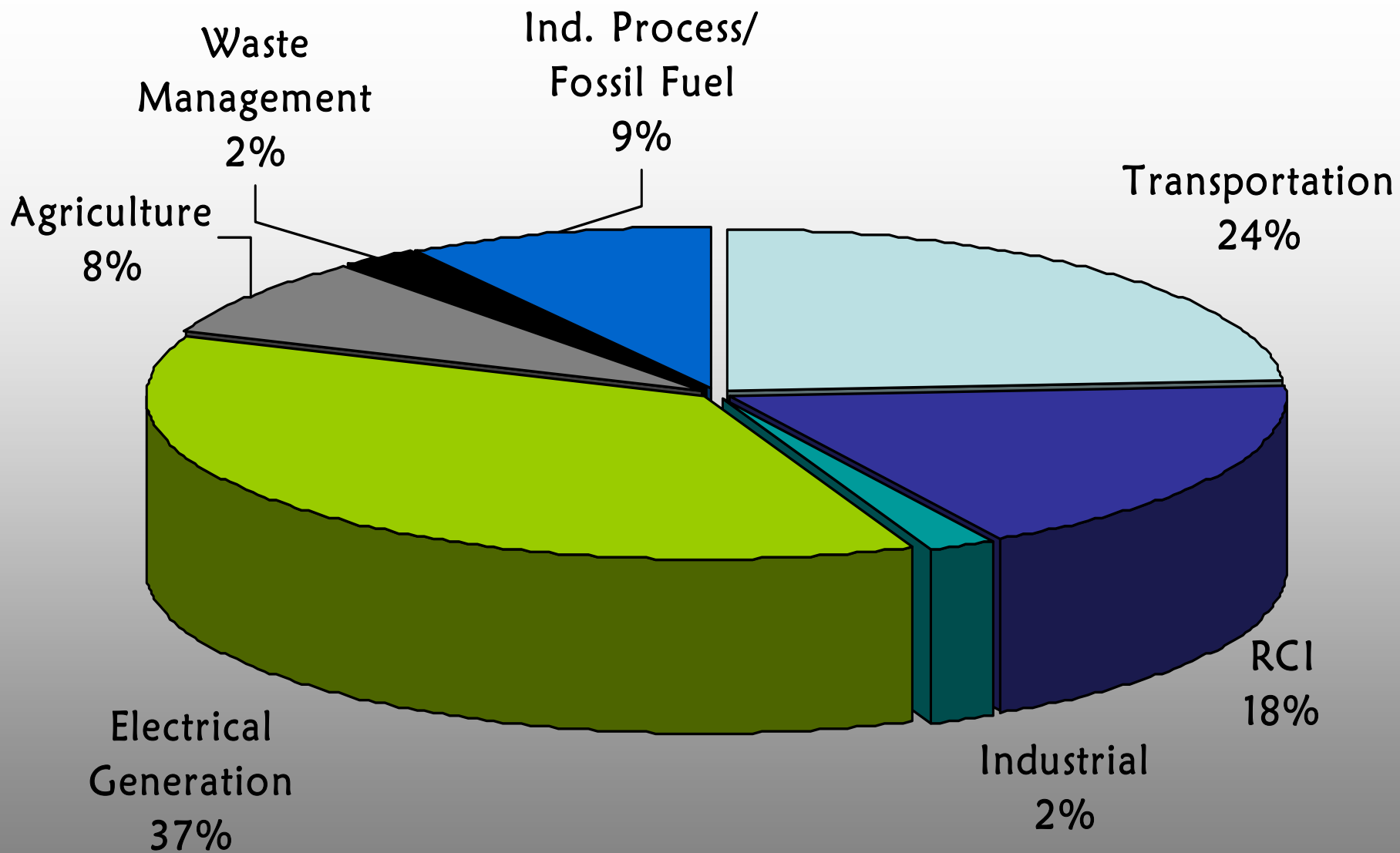
Annual Carbon Dioxide Emissions



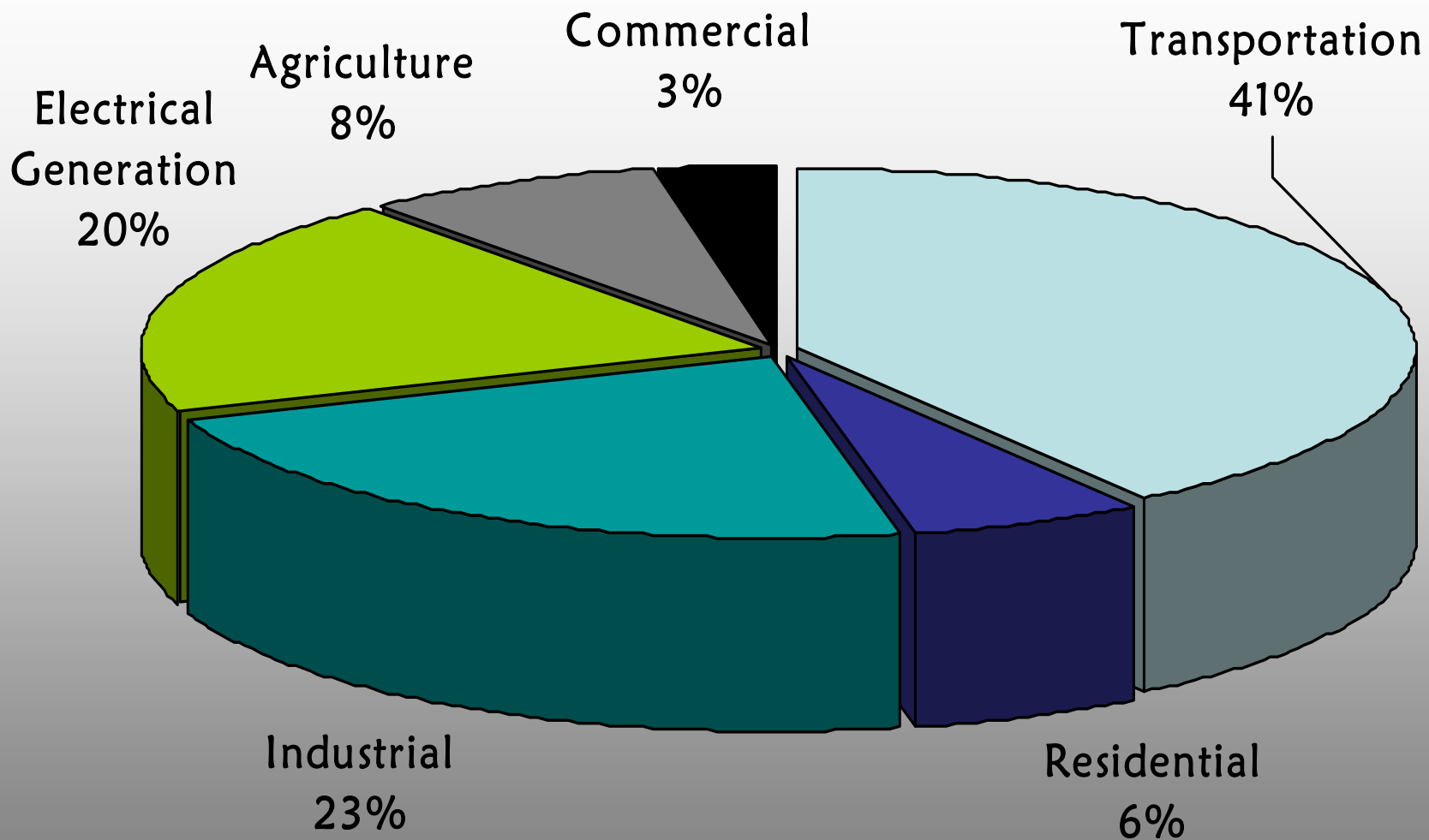
U.S. Greenhouse Gases



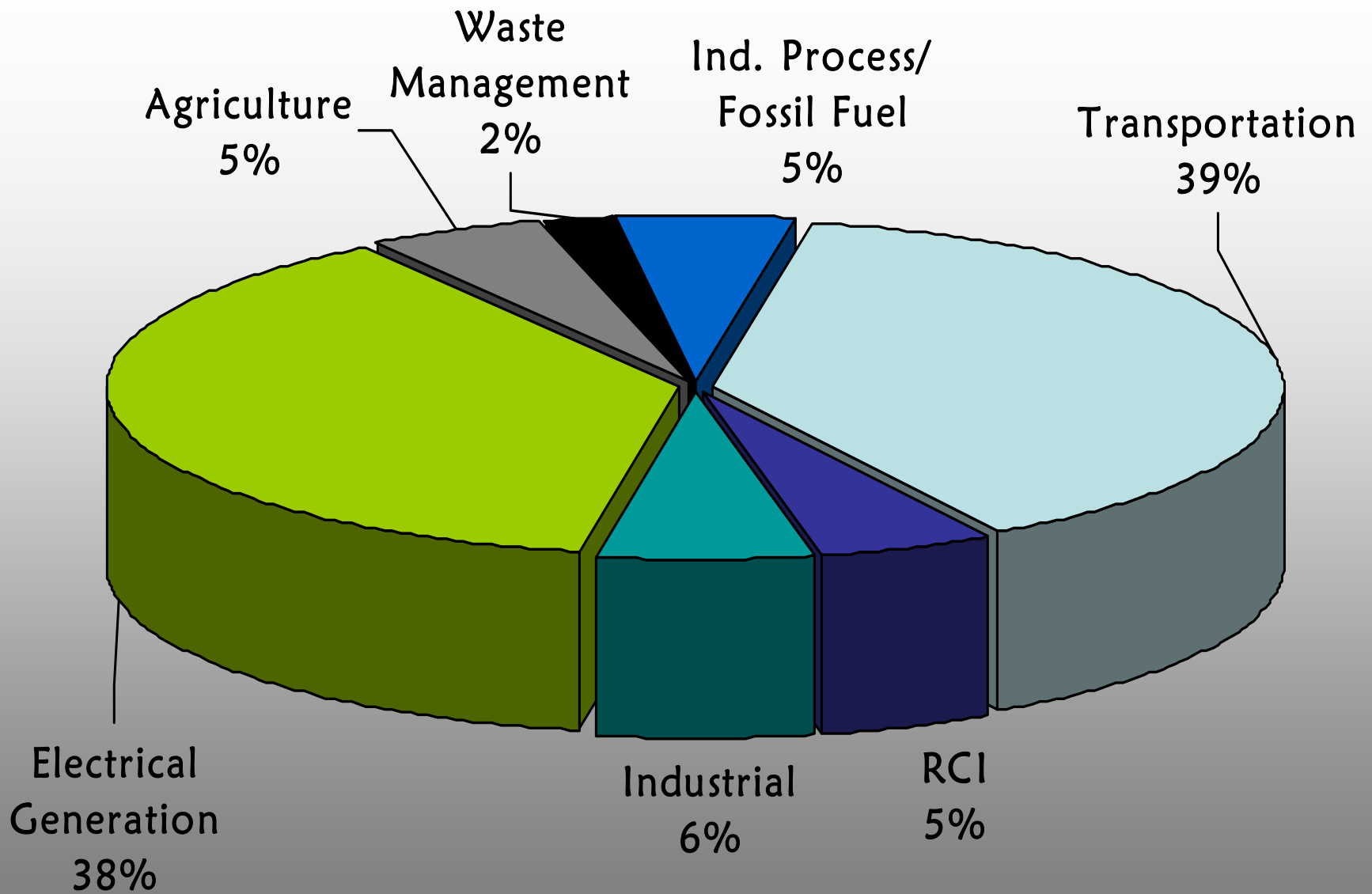




Colorado

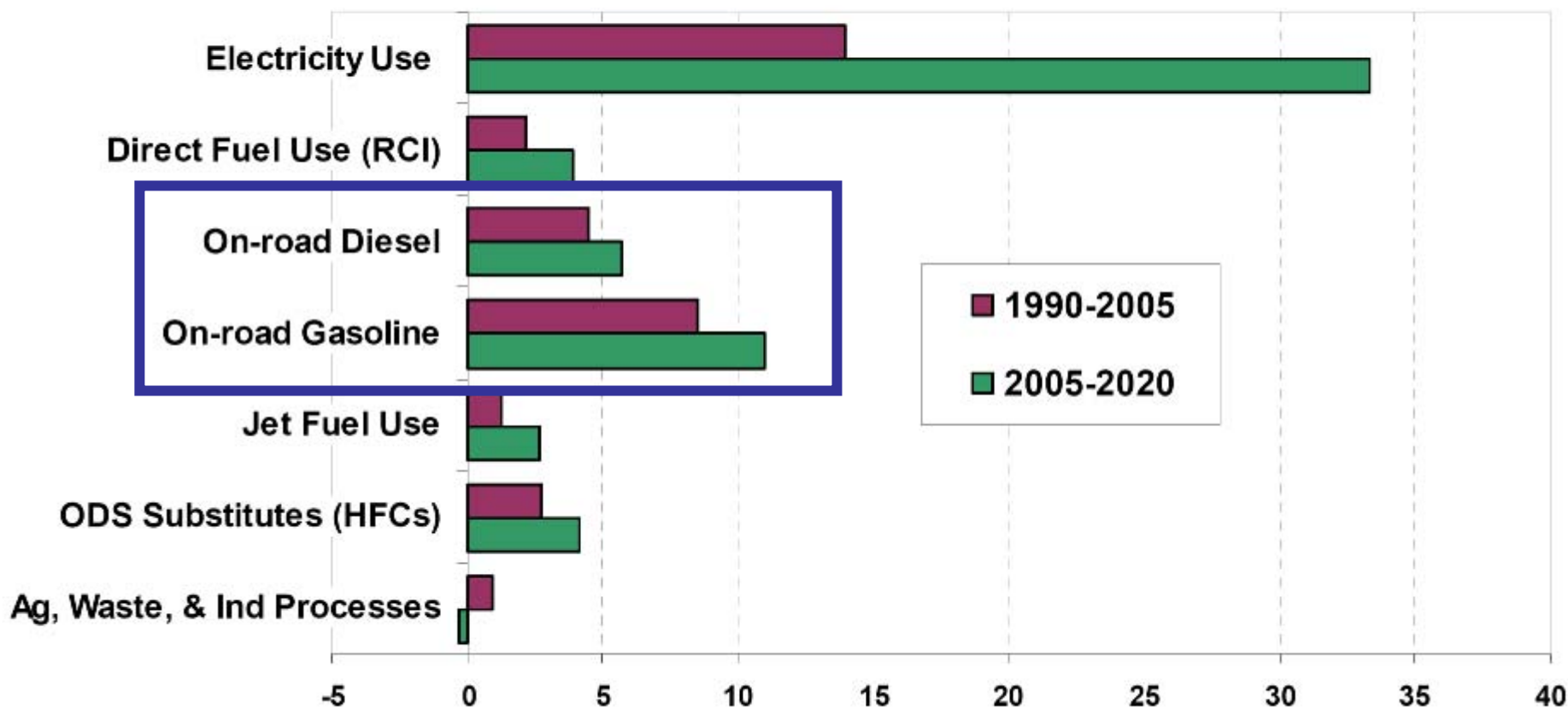


California



Arizona

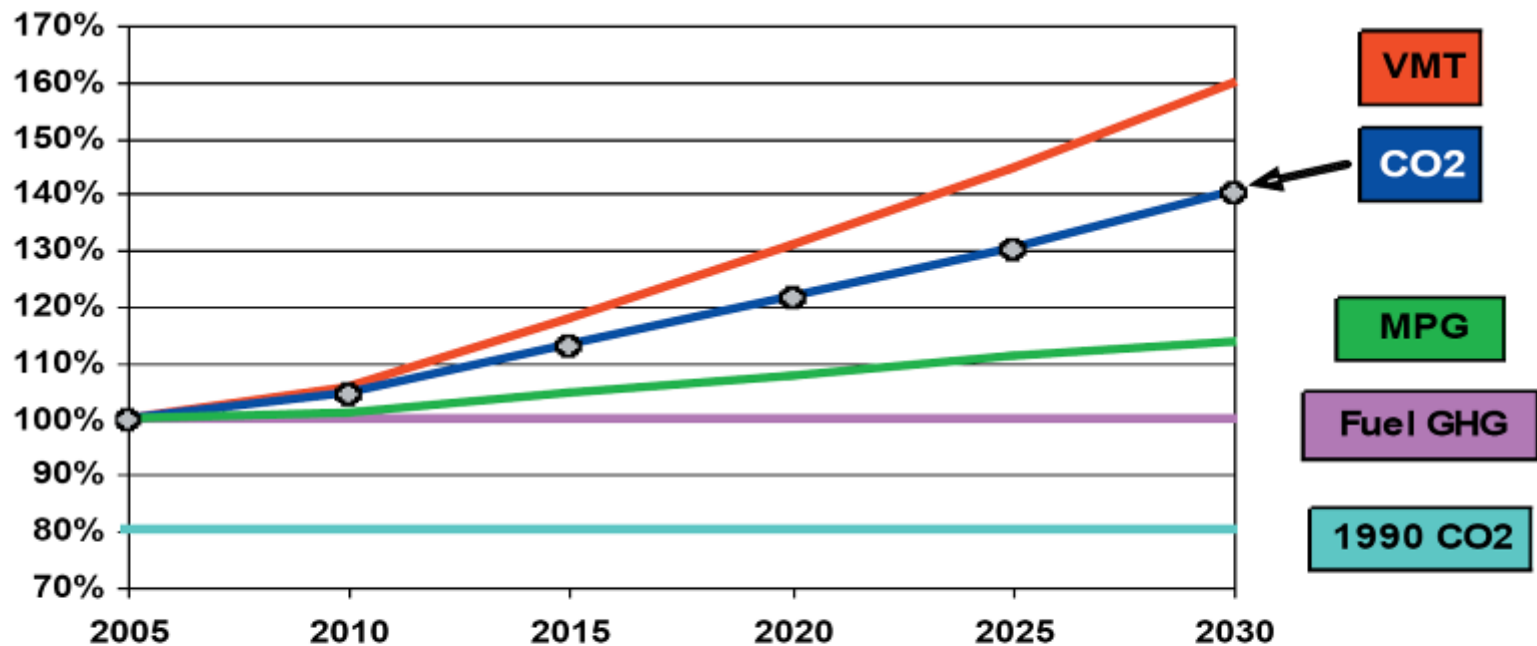
Figure 4. Contributions to Emissions Growth, 1990-2020: Reference Case Projections (MMTCO₂e)



Motor Vehicles & CO₂

FIGURE O-2

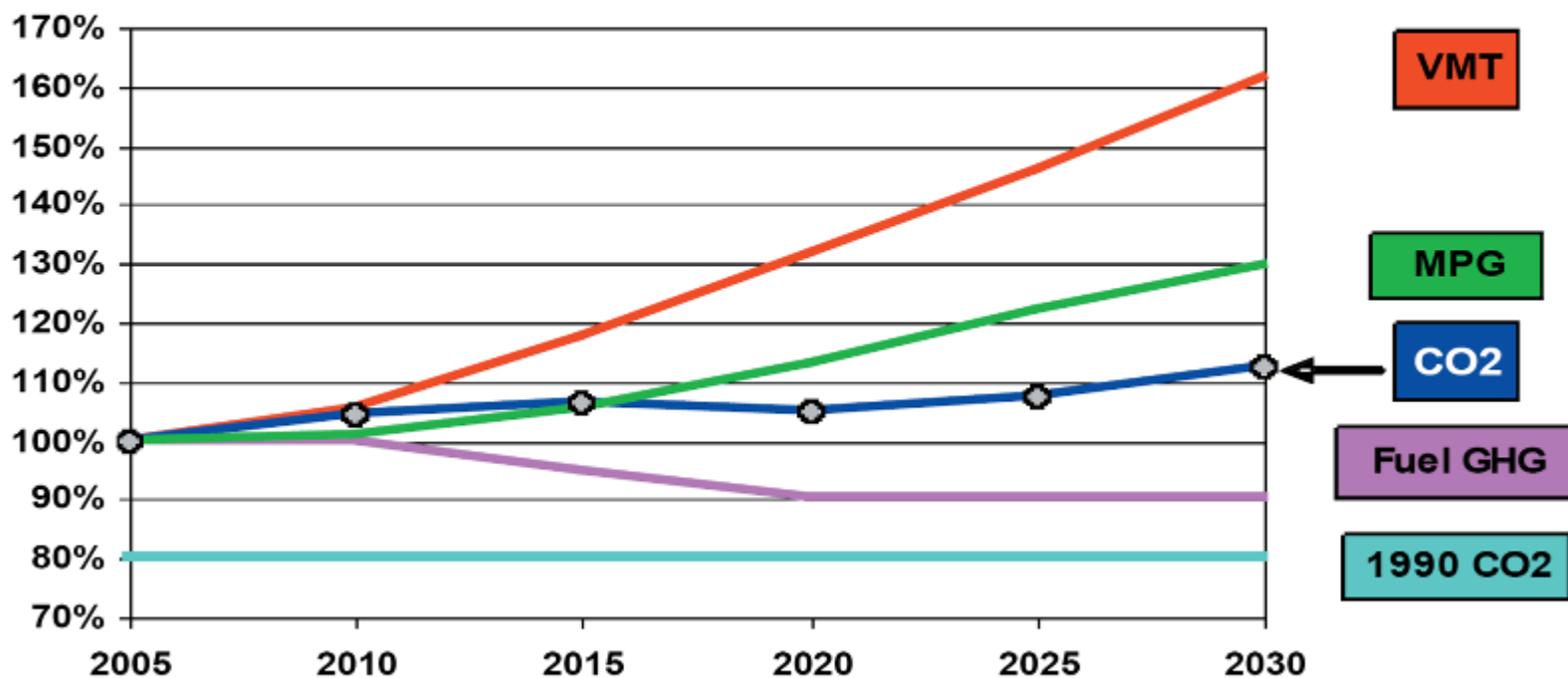
PROJECTED GROWTH IN CO₂ EMISSIONS FROM CARS AND LIGHT TRUCKS



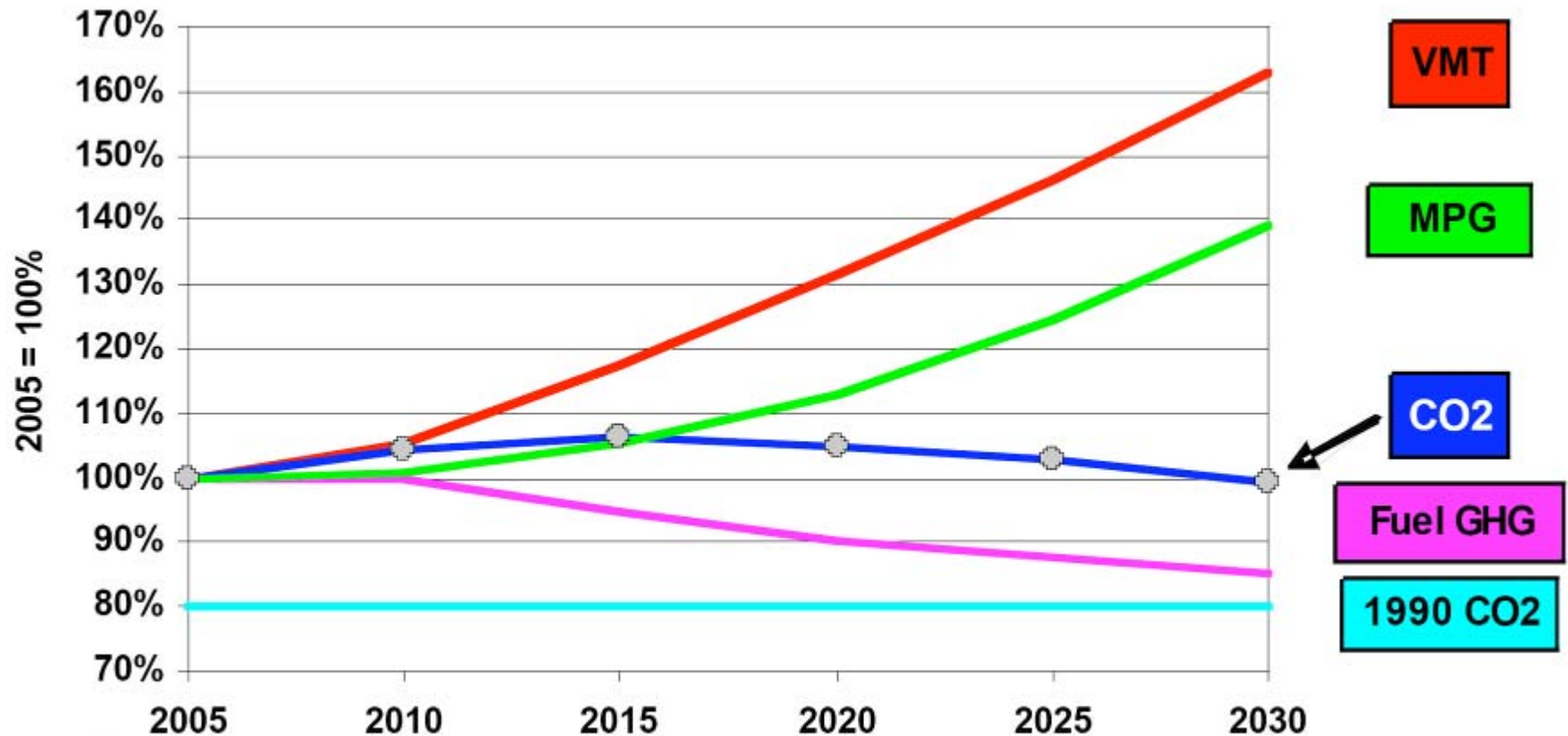
Vehicle Technology Alone Will Not Solve the Problem

PROJECTED GROWTH IN CO₂ 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.



...Even With Very Stringent Standards



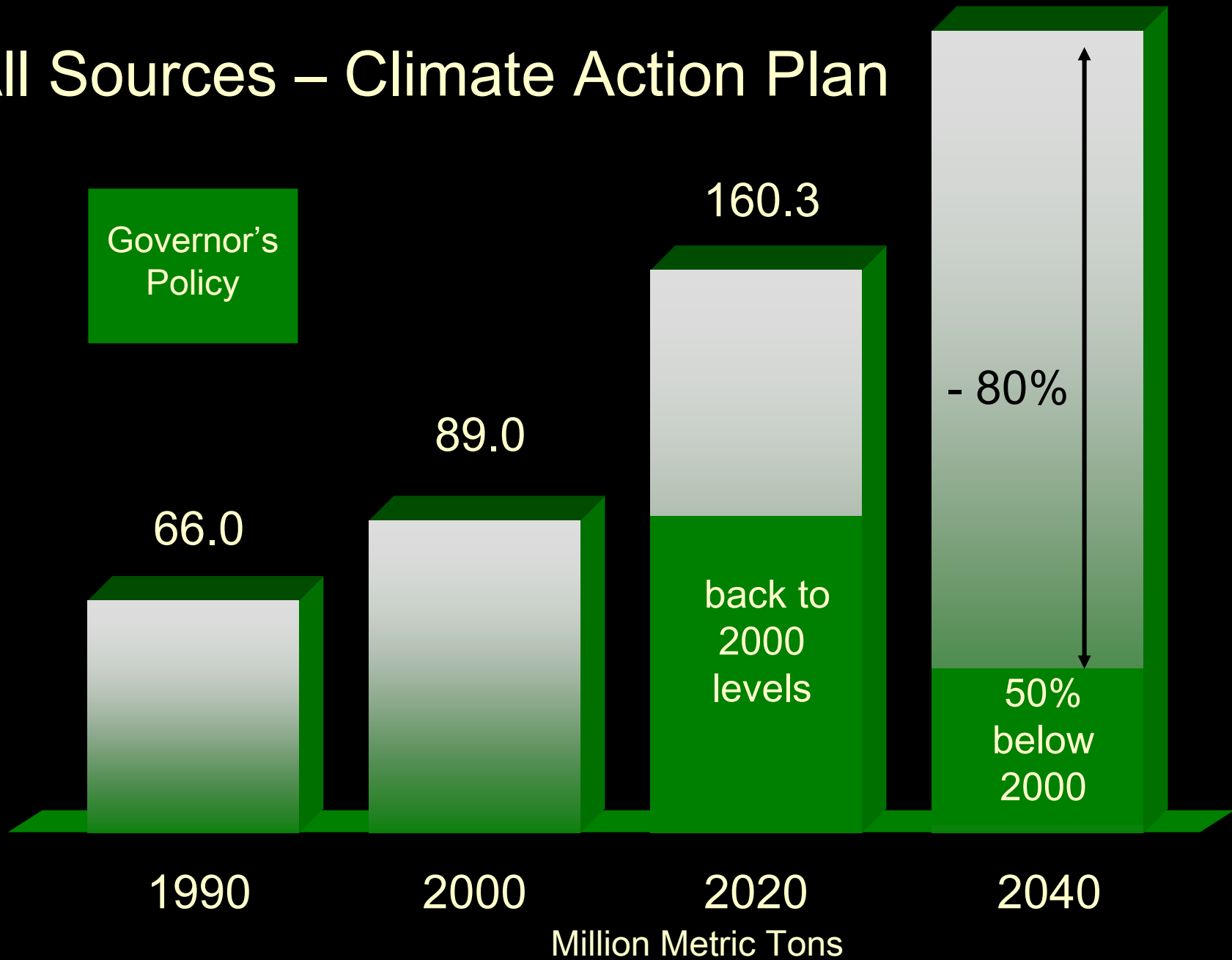
Sources: VMT: EIA with 10% rebound, MPG & Fuel: Trend Extrapolation

State Example: Arizona



Arizona Gross Greenhouse Gas Emissions

All Sources – Climate Action Plan



Phoenix Valley Freeways

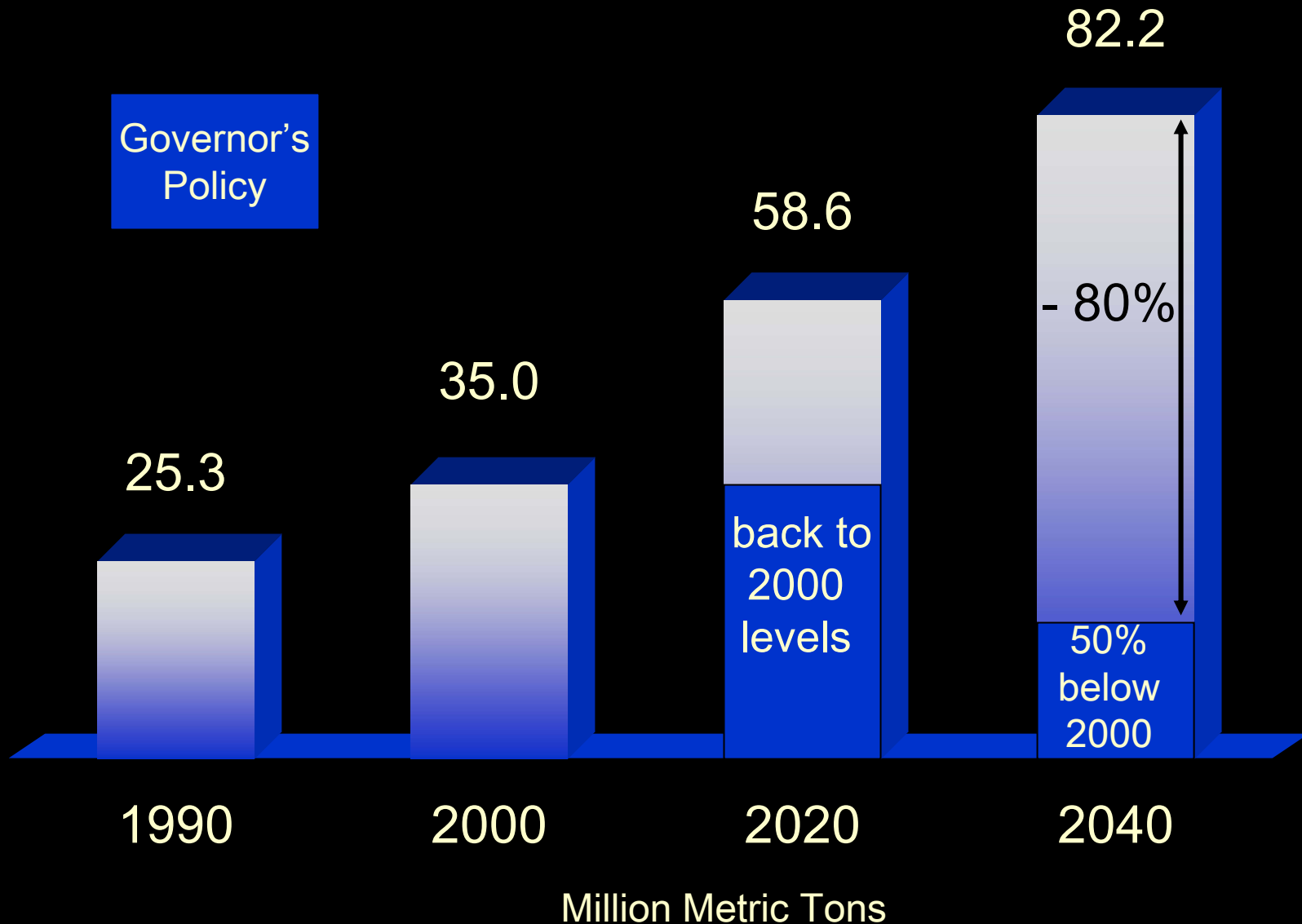
TTI Data - 2007



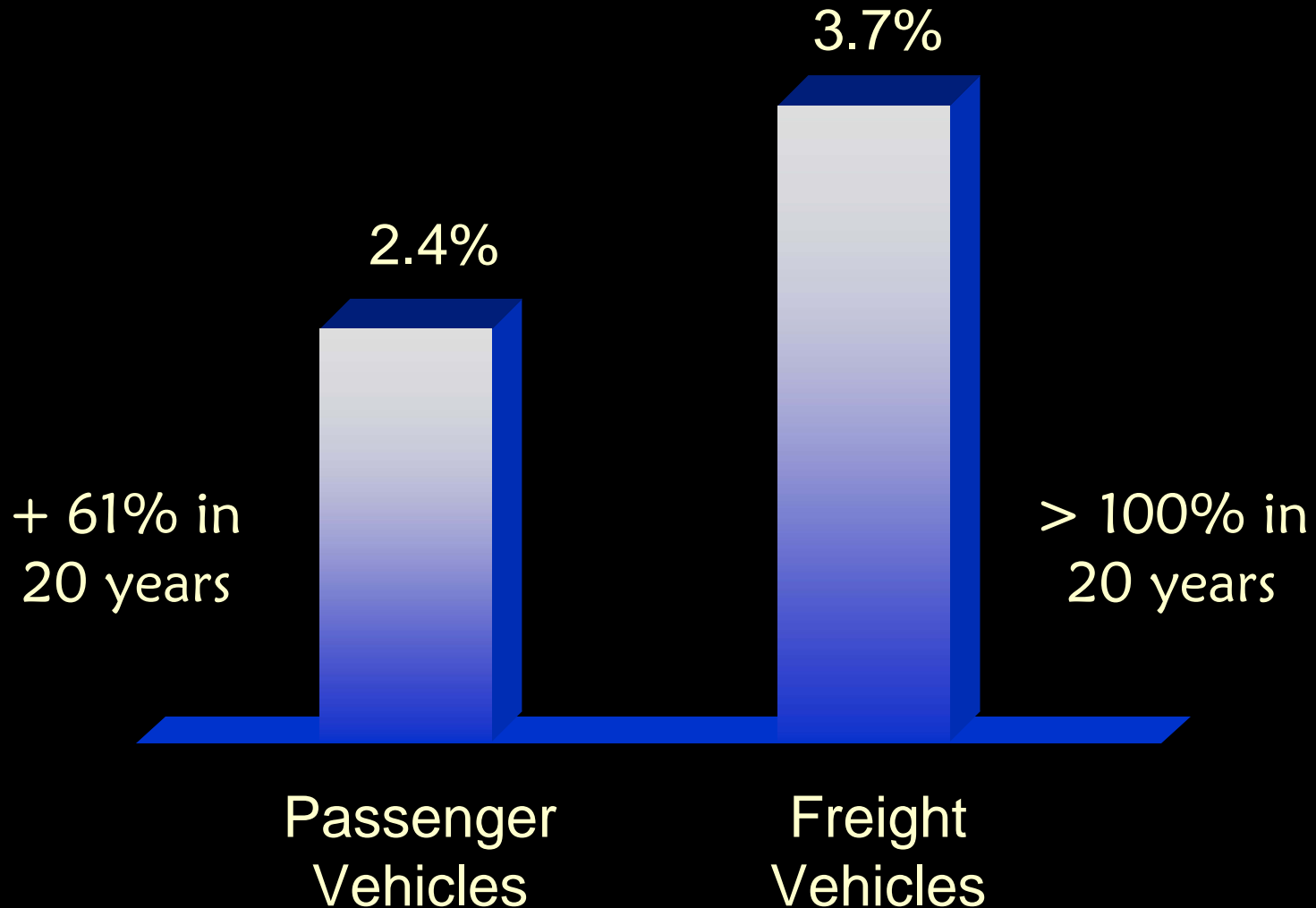
New roads needed to avoid increase in congestion:
412 lane miles per year

Arizona Gross Greenhouse Gas Emissions

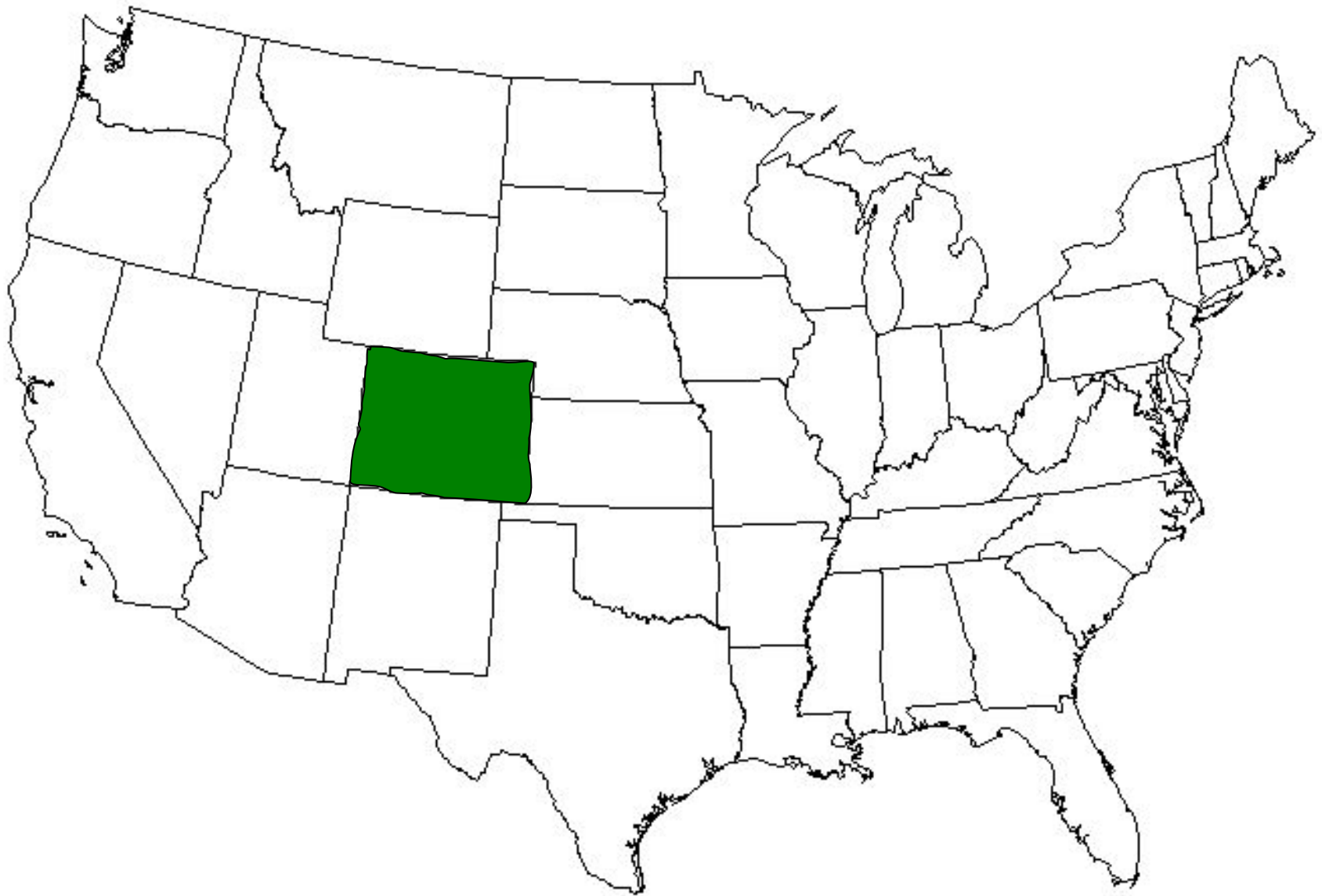
Transportation Sources



Annual Growth Rate to 2020: AZ Vehicle Miles of Travel

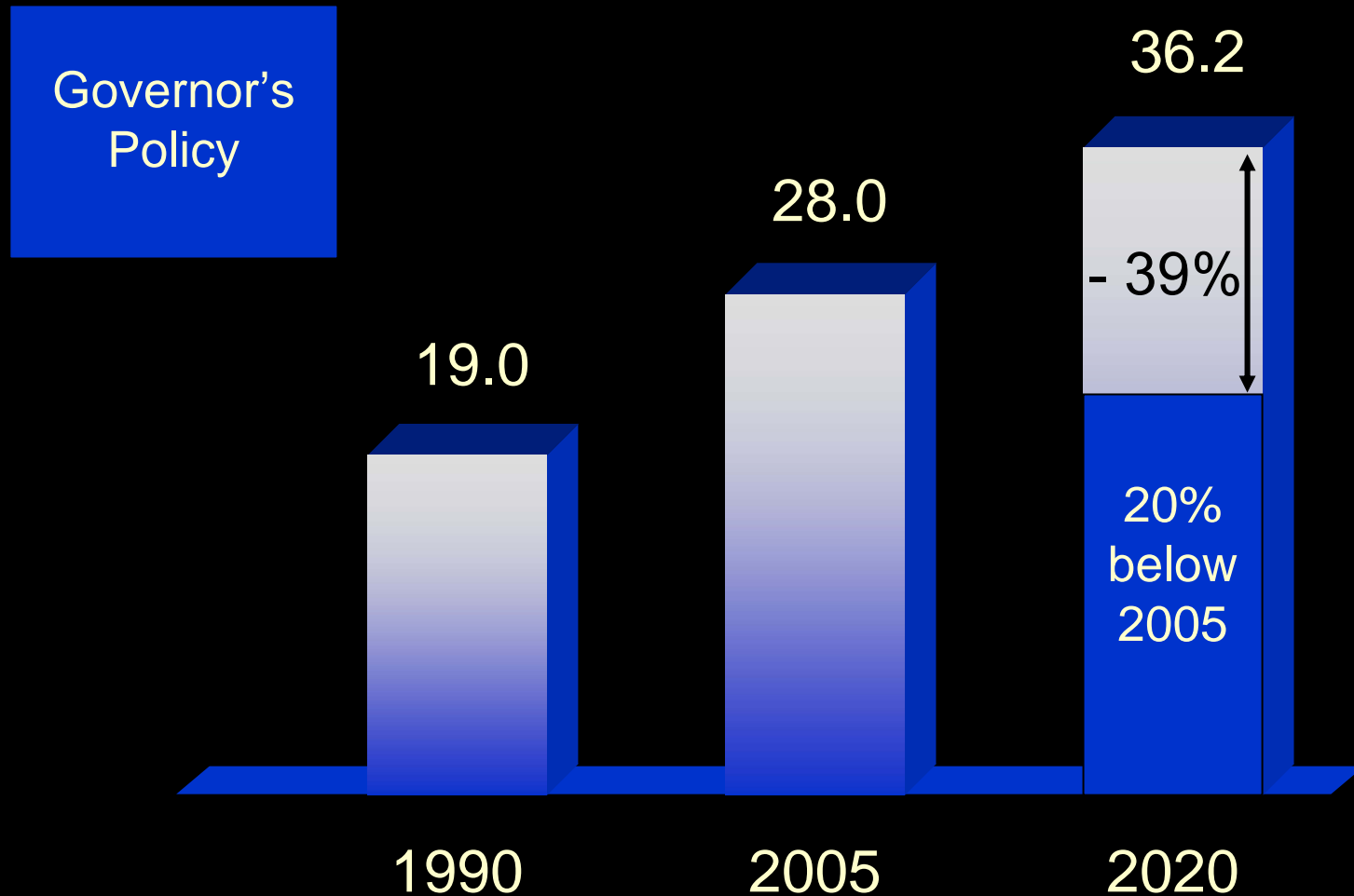


State Example: Colorado



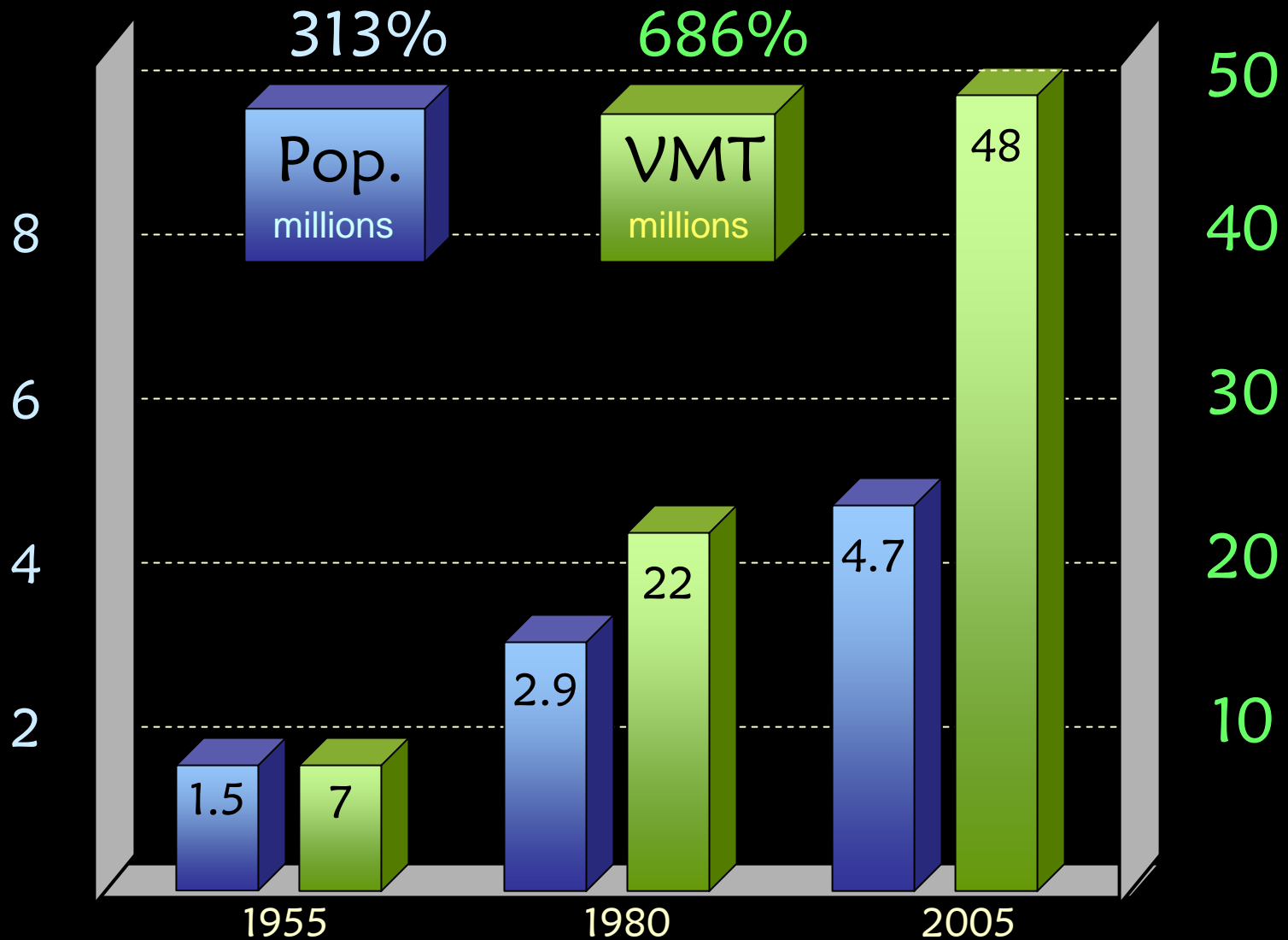
Gross Greenhouse Gas Emissions

Transportation – Colorado



Colorado

Population & VMT



Impact on Communities

- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- We are making mobility unaffordable
- We are making our neighborhoods and communities unsafe and unhealthy

Impact on Communities

- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- We are making mobility unaffordable
- We are making our neighborhoods and communities unsafe and unhealthy

Are we running out of gas?



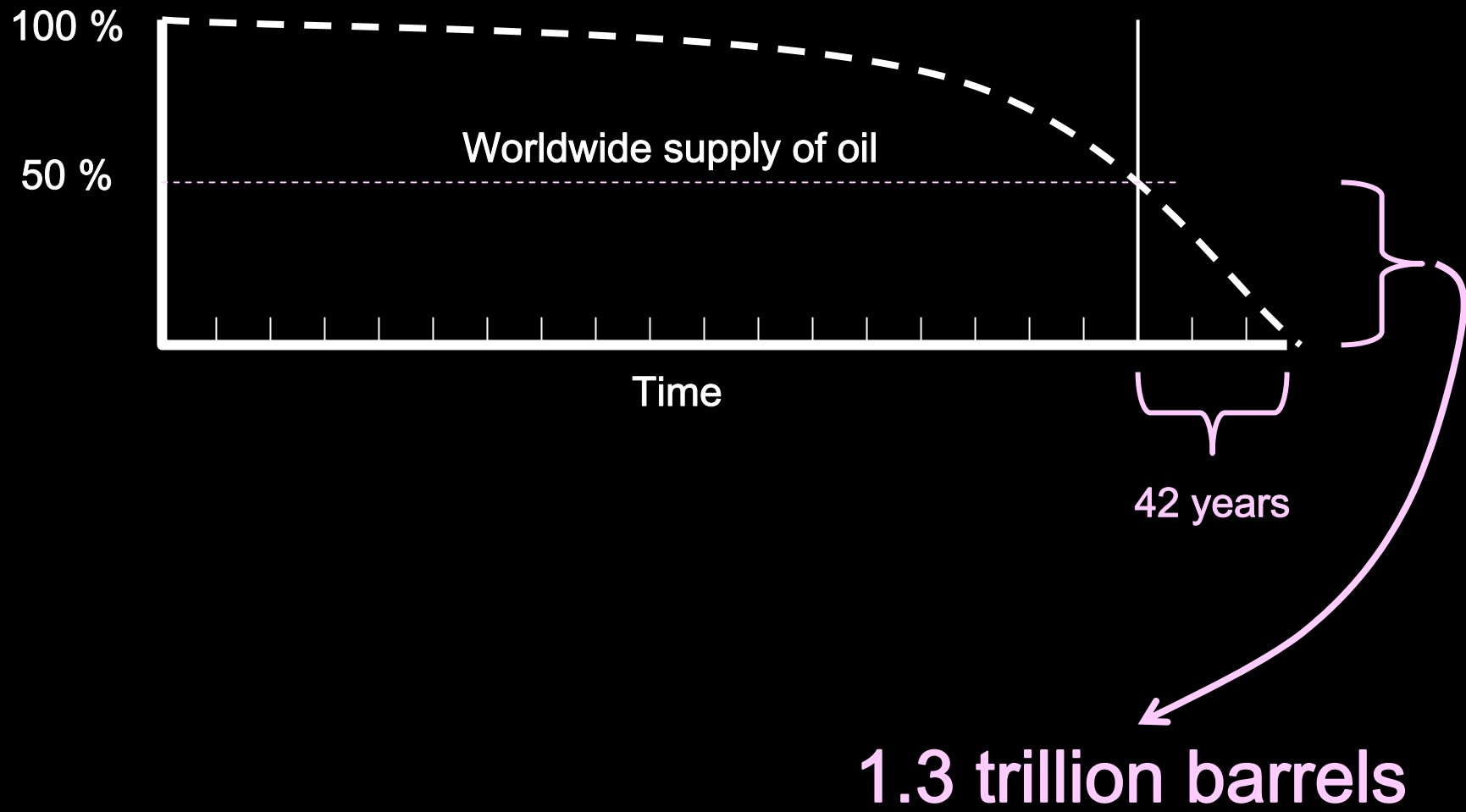
The stone age did not end...
...because we ran out of stones

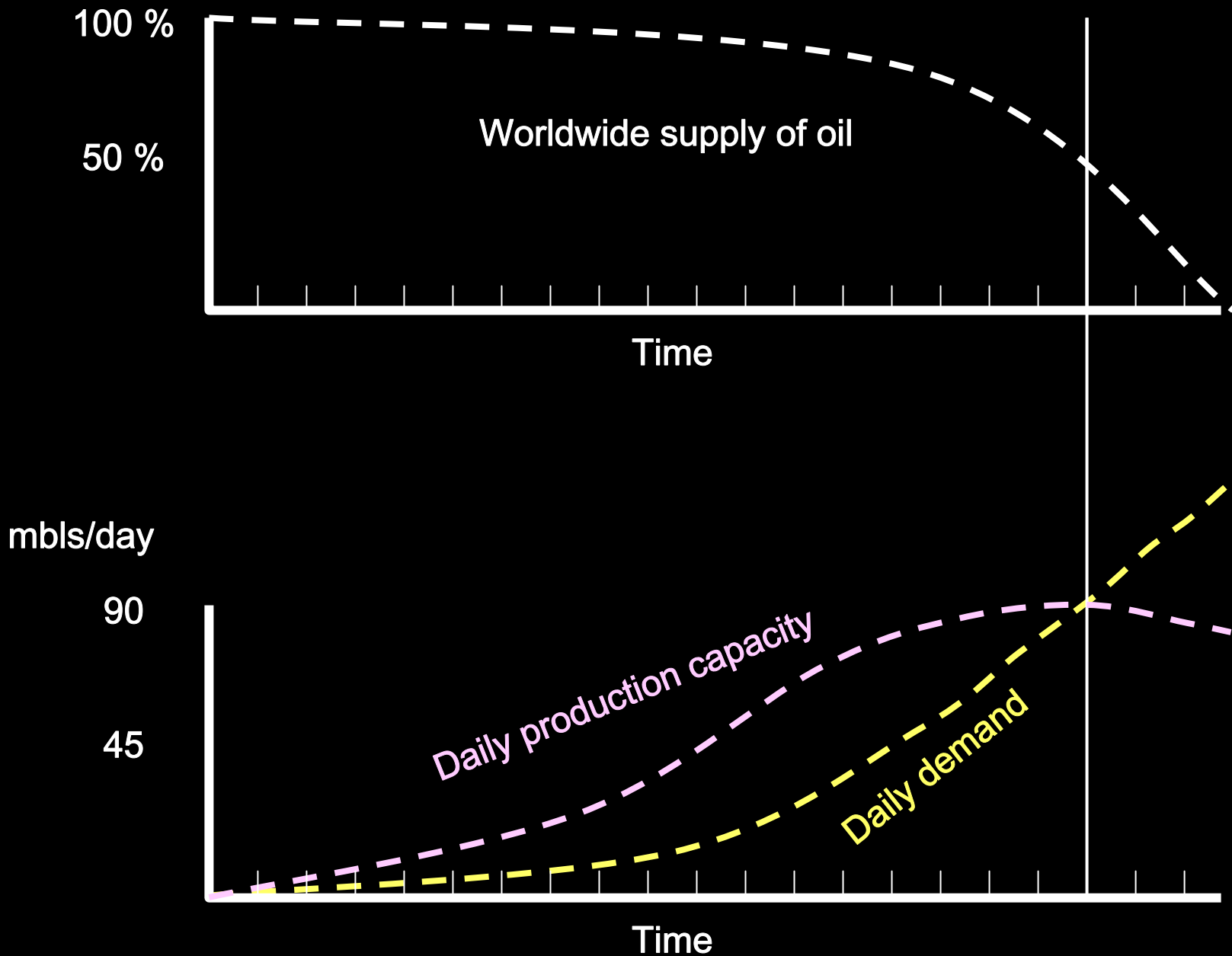


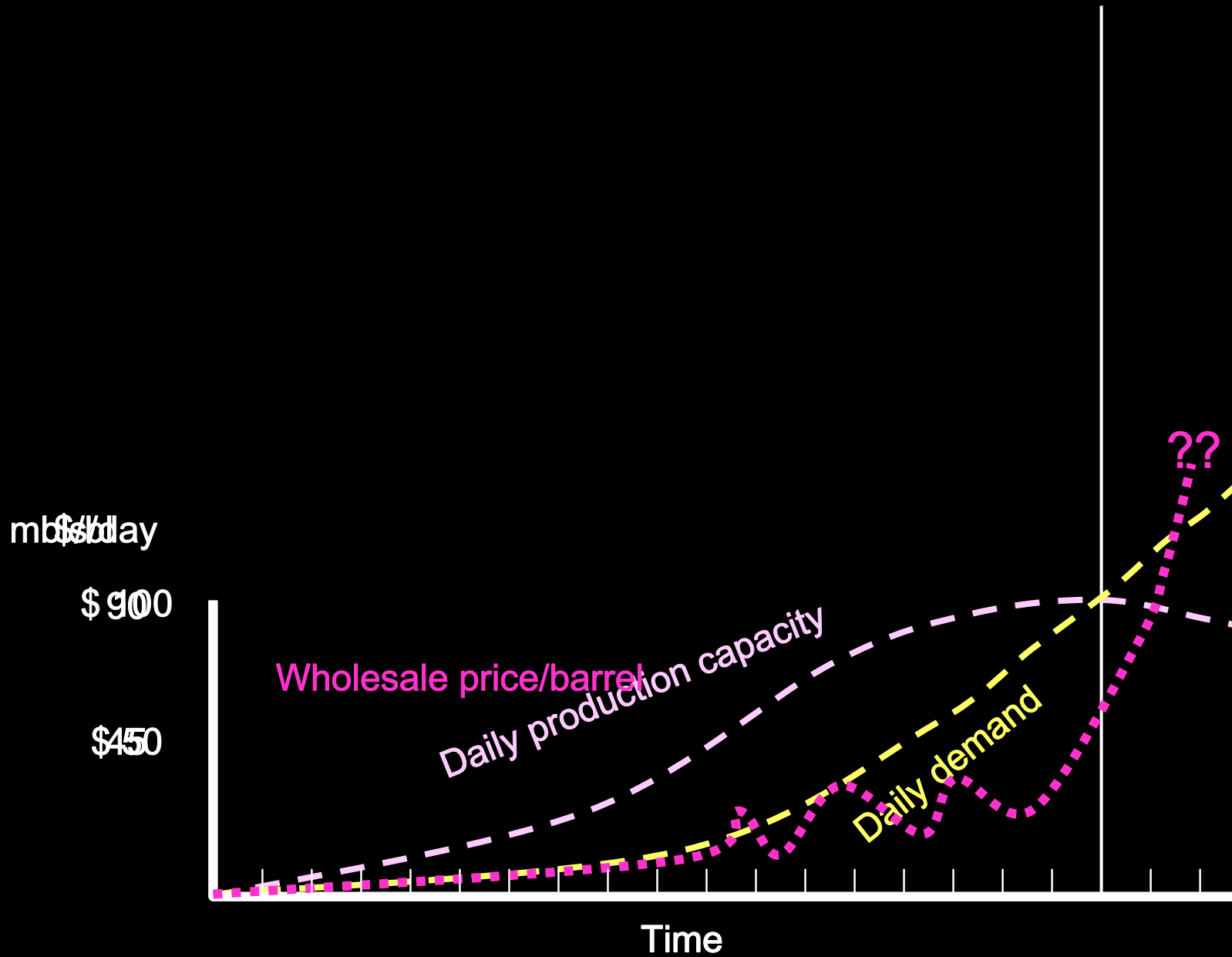


The end of the age of...

...cheap oil







NYMEX Crude Oil Futures Close (Front Month)

\$ / Barrel



Feb. 1, 2007 - Feb. 8, 2008

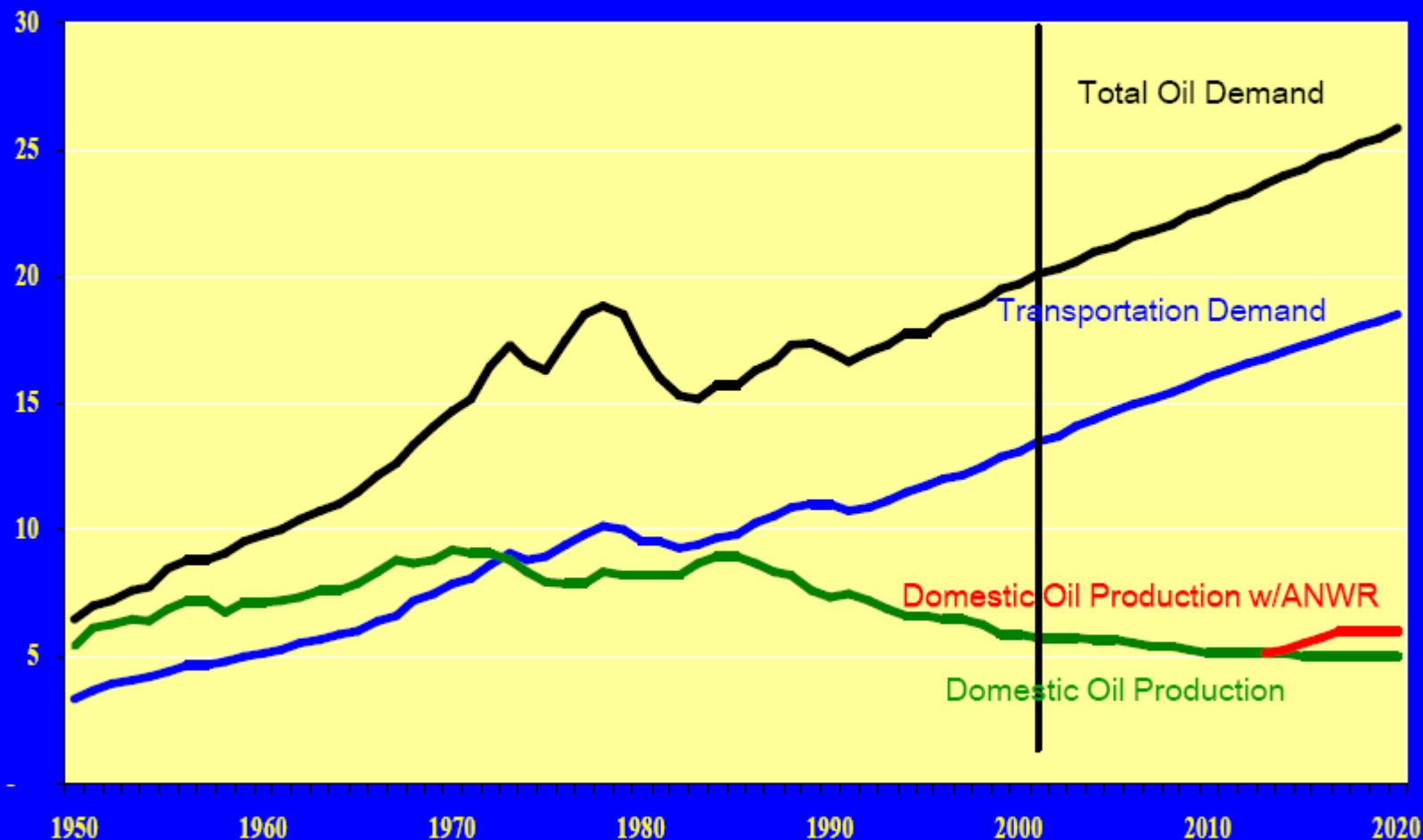
WTRG Economics ©2008

www.wtrg.com

(479) 293-4081

— Close

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

Impact on Communities

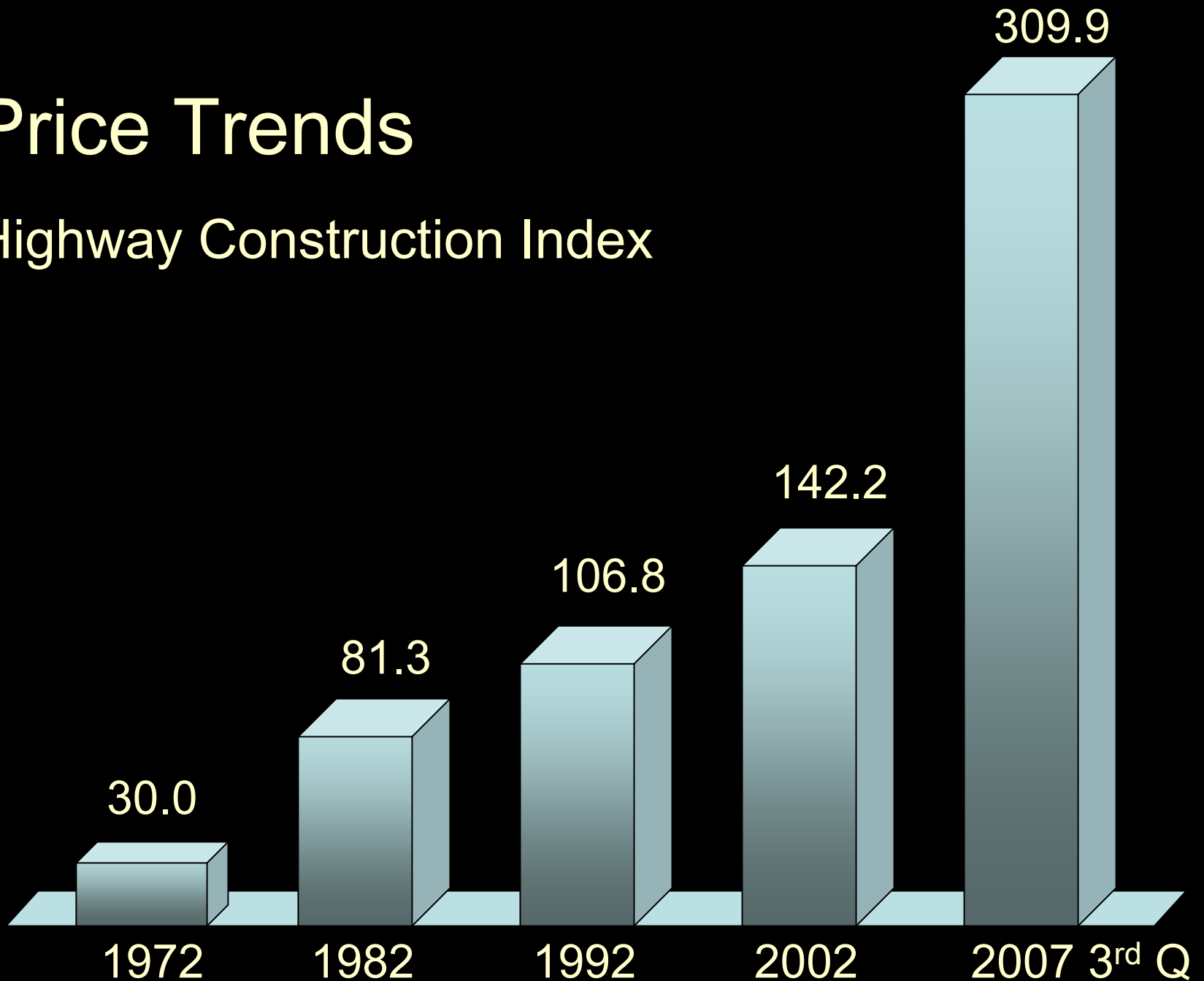
- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- We are making mobility unaffordable
- We are making our neighborhoods and communities unsafe and unhealthy

Impact on Communities

- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- **We are making mobility unaffordable**
- We are making our neighborhoods and communities unsafe and unhealthy

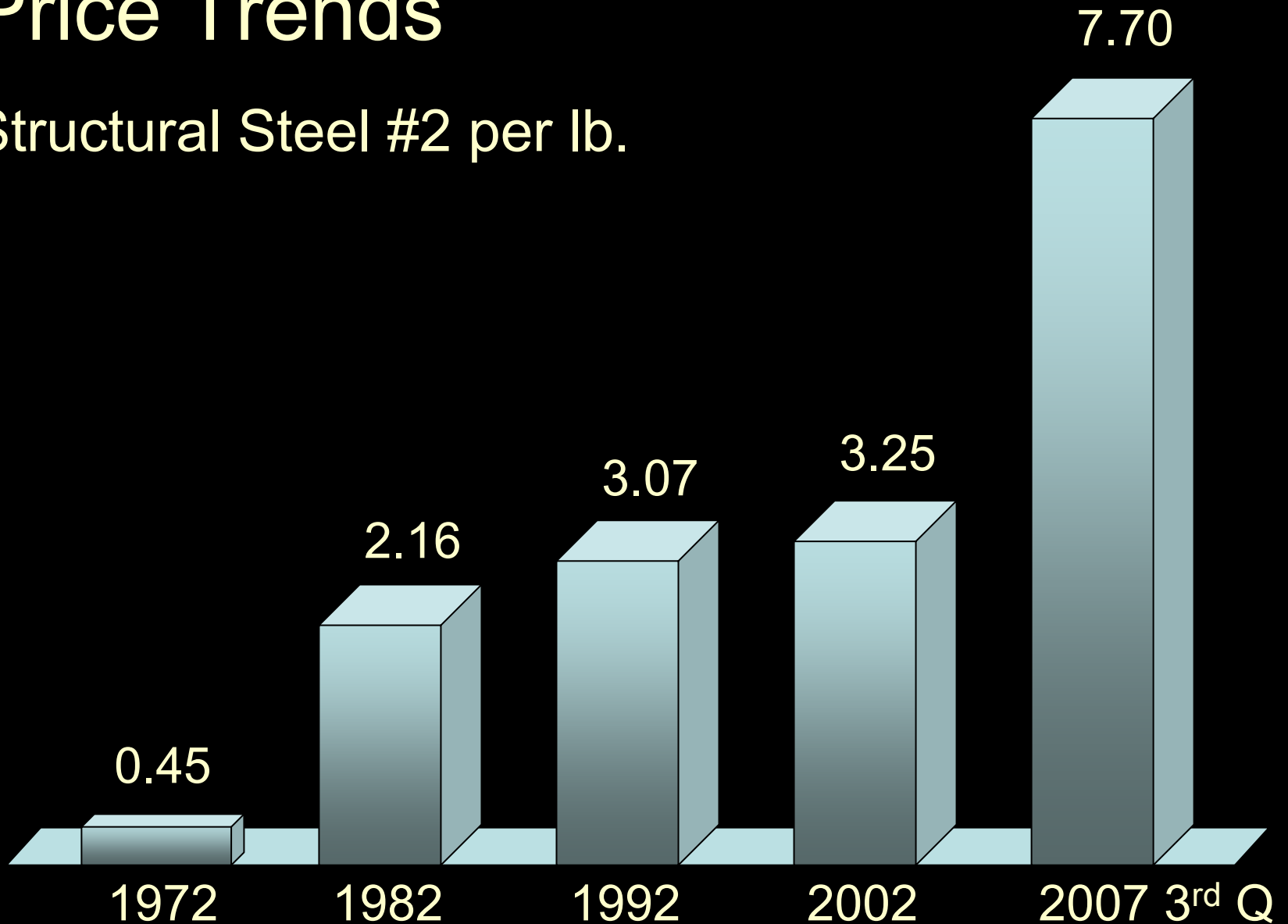
Price Trends

Highway Construction Index



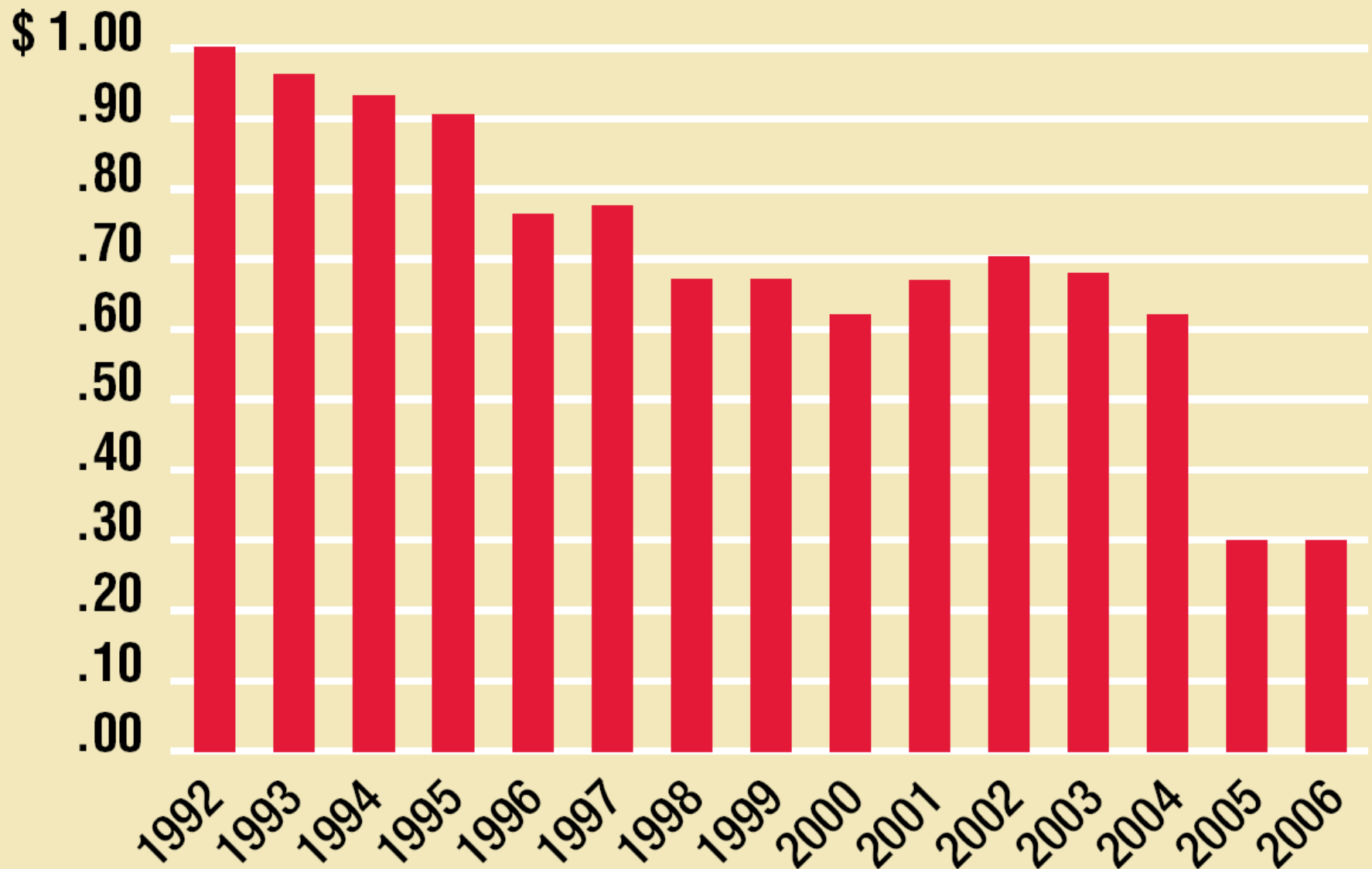
Price Trends

Structural Steel #2 per lb.



State Fuel Tax – Worth 30% of its Original Value

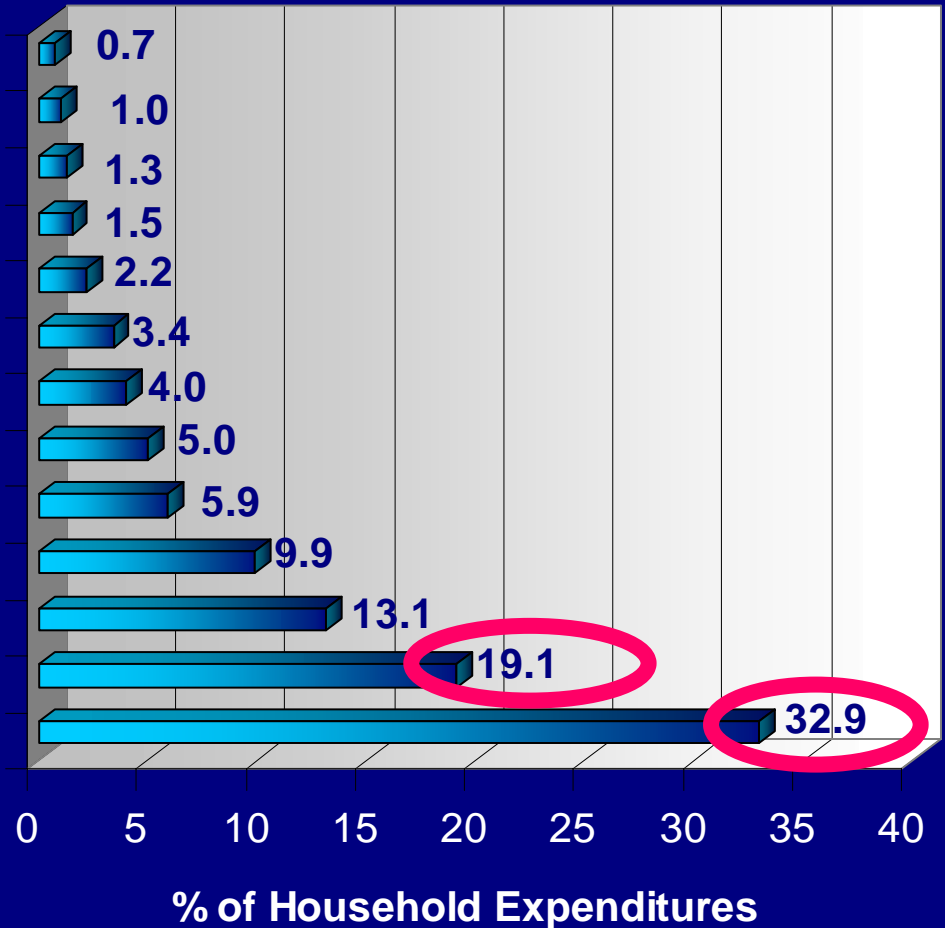
Relative Value of Colorado Motor Fuel Tax



Household Expenditures



Transportation
Housing



Phoenix Valley Congestion Cost

TTI Data - 2007



Impact on Communities

- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- **We are making mobility unaffordable**
- We are making our neighborhoods and communities unsafe and unhealthy

Impact on Communities

- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- We are making mobility unaffordable
- We are making our neighborhoods and communities unsafe and unhealthy



A street near you

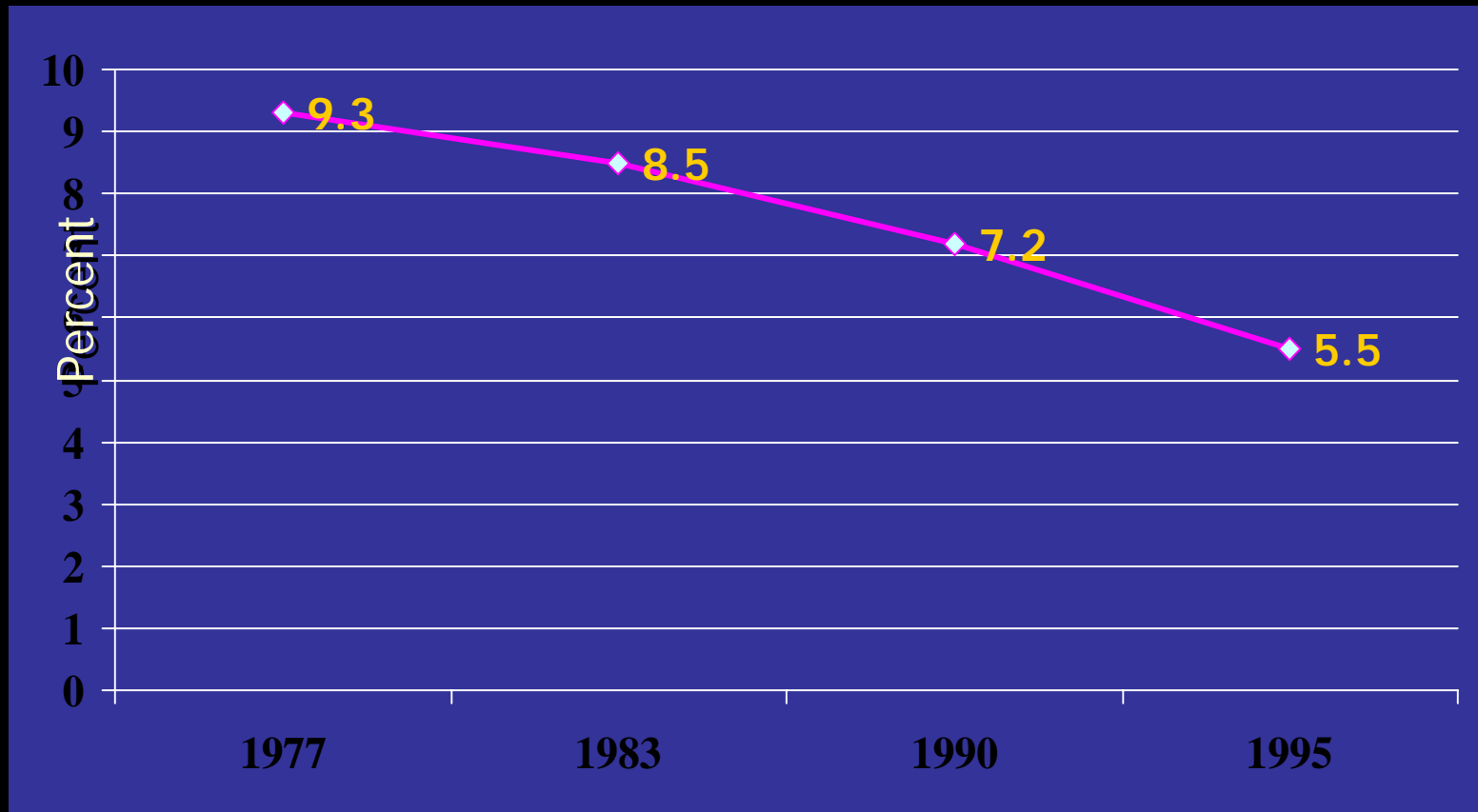


A street near you

Anywhere, USA



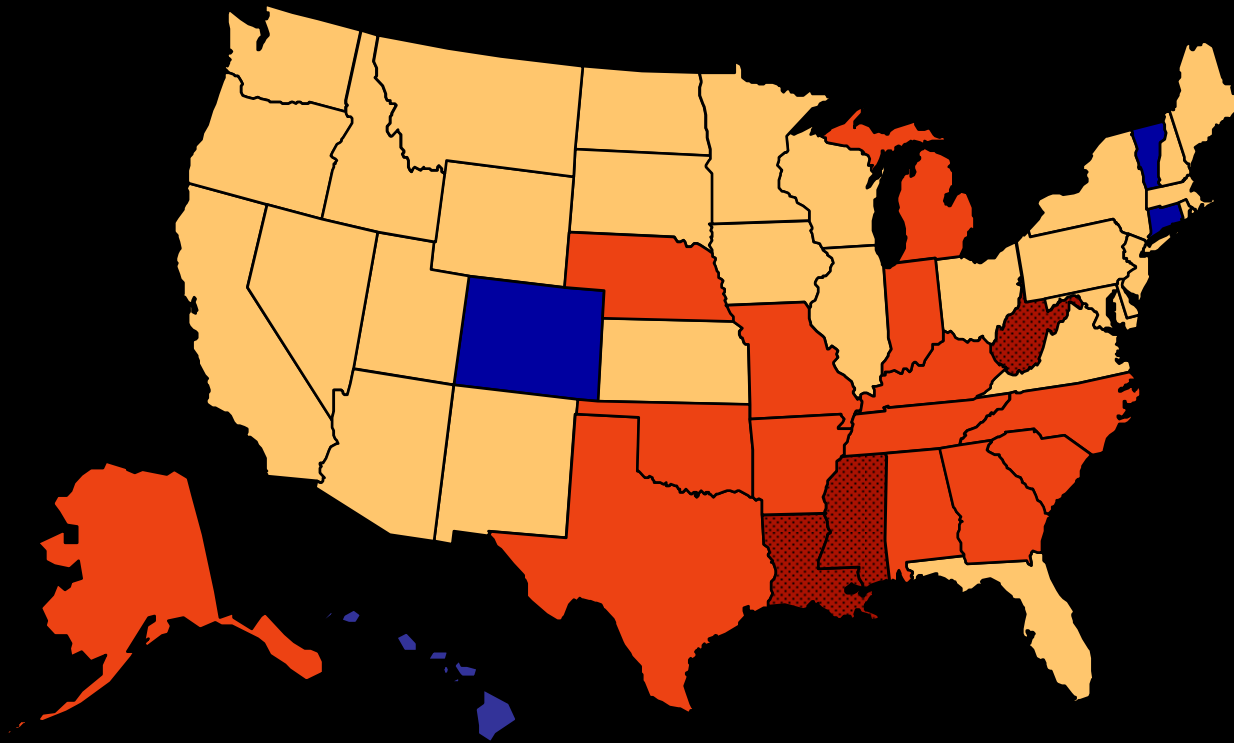
U.S. Walk Trips 1977-1995



Source: Nationwide Personal Transportation Survey, 1995

2005

Obesity Index by State



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

Impact on Communities

- We have increased travel, but reduced mobility
- We are subtracting value from cities in order to subsidize suburban development
- We are increasing mobile GHG emissions
- We are increasing energy required for mobility
- We are making mobility unaffordable
- We are making our neighborhoods and communities unsafe and unhealthy

Bottom Line – Impact on Our Communities:

Transportation policy, economic policy, public health policy, energy policy and climate change policy are inseparable.

We must begin to overhaul our transportation policy **NOW**.

3.

5 Things GreenTea Must Do

Current Federal Transportation Policy Is

1. Increasing energy dependency
2. Increasing GHG emissions
3. Limiting personal mobility
4. Increasing the cost of mobility
5. Damaging public health

5 Things GreenTea Must Do

1. Reduce (not increase) energy dependency
2. Reduce (not increase) GHG emissions
3. Improve (not limit) mobility
4. Reduce (not increase) the cost of mobility
5. Foster (not damage) public health



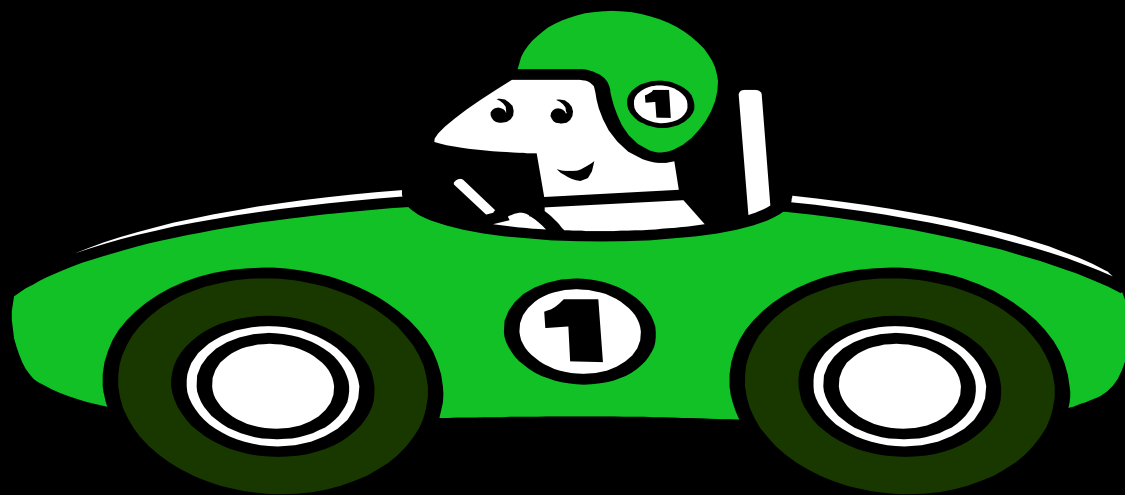
1. Reduce Energy Dependency
2. Reduce GHG Emissions

5 Things GreenTea Must Do

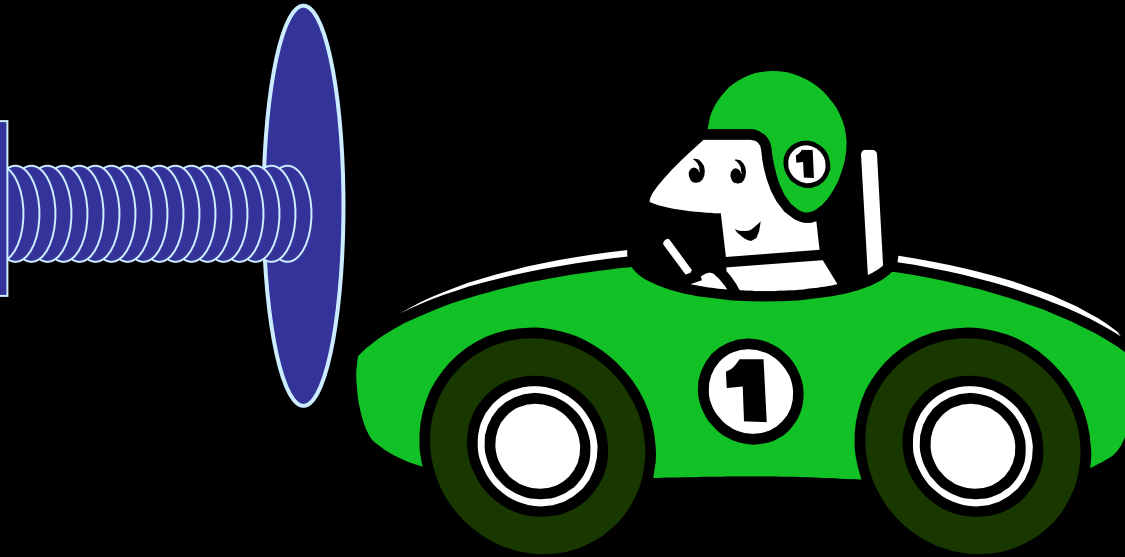


Overall Policy Approach

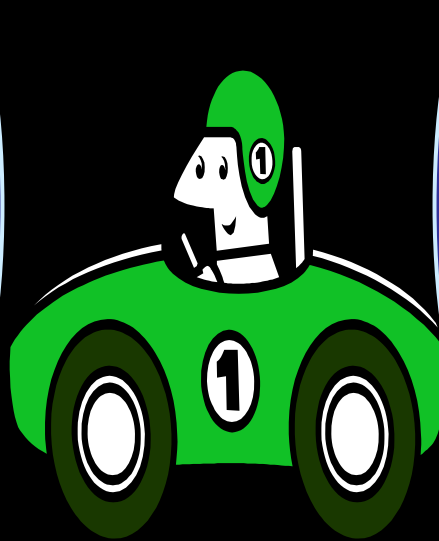
1. Accelerate increases in fleet efficiency
2. Make VMT reductions feasible
3. Modernize freight system



Resource
Depletion



Resource
Depletion



Air & Water
Pollution

Cost of Travel

Resource
Depletion

Air & Water
Pollution

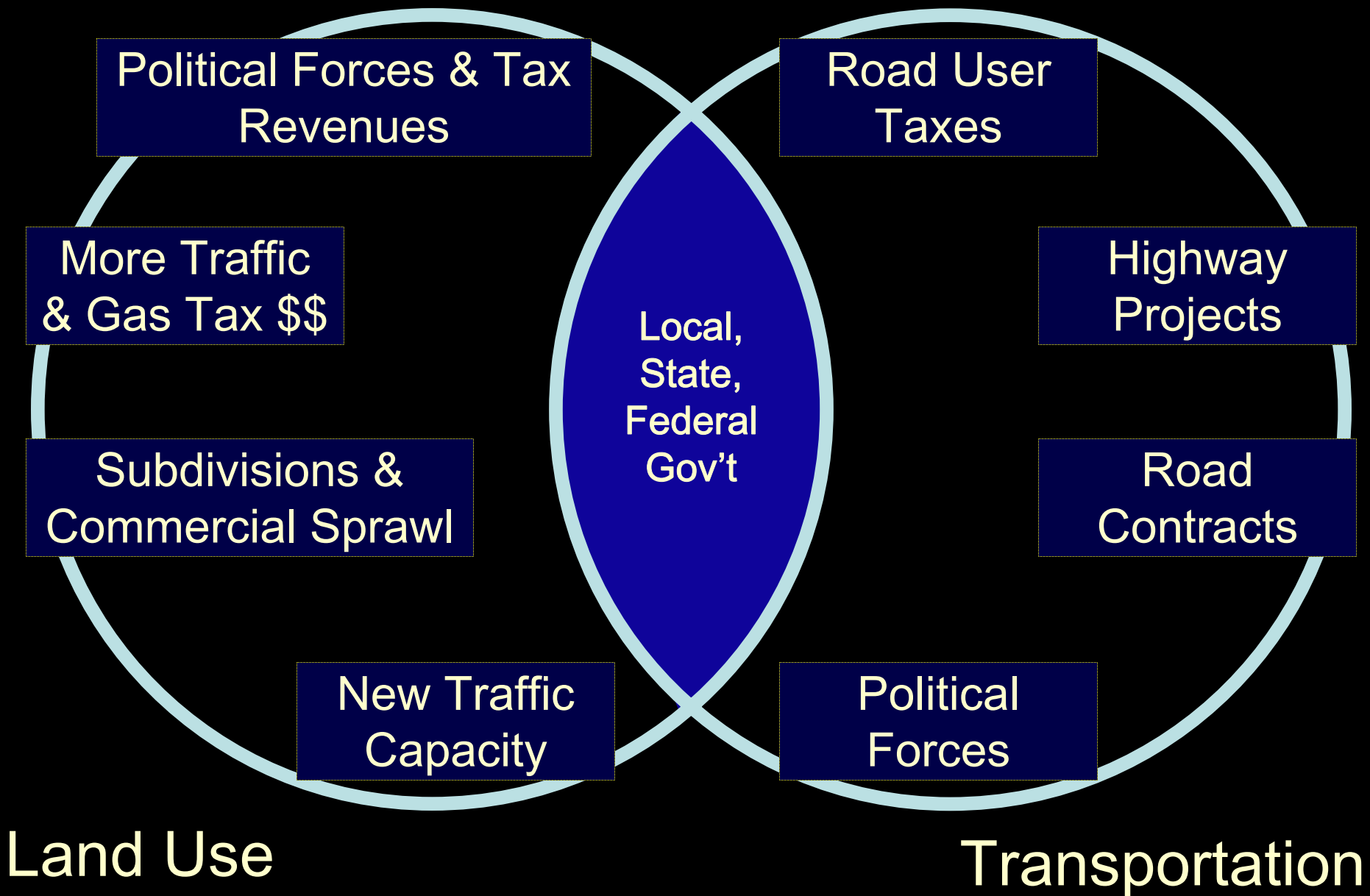
Greenhouse Gas
Emissions



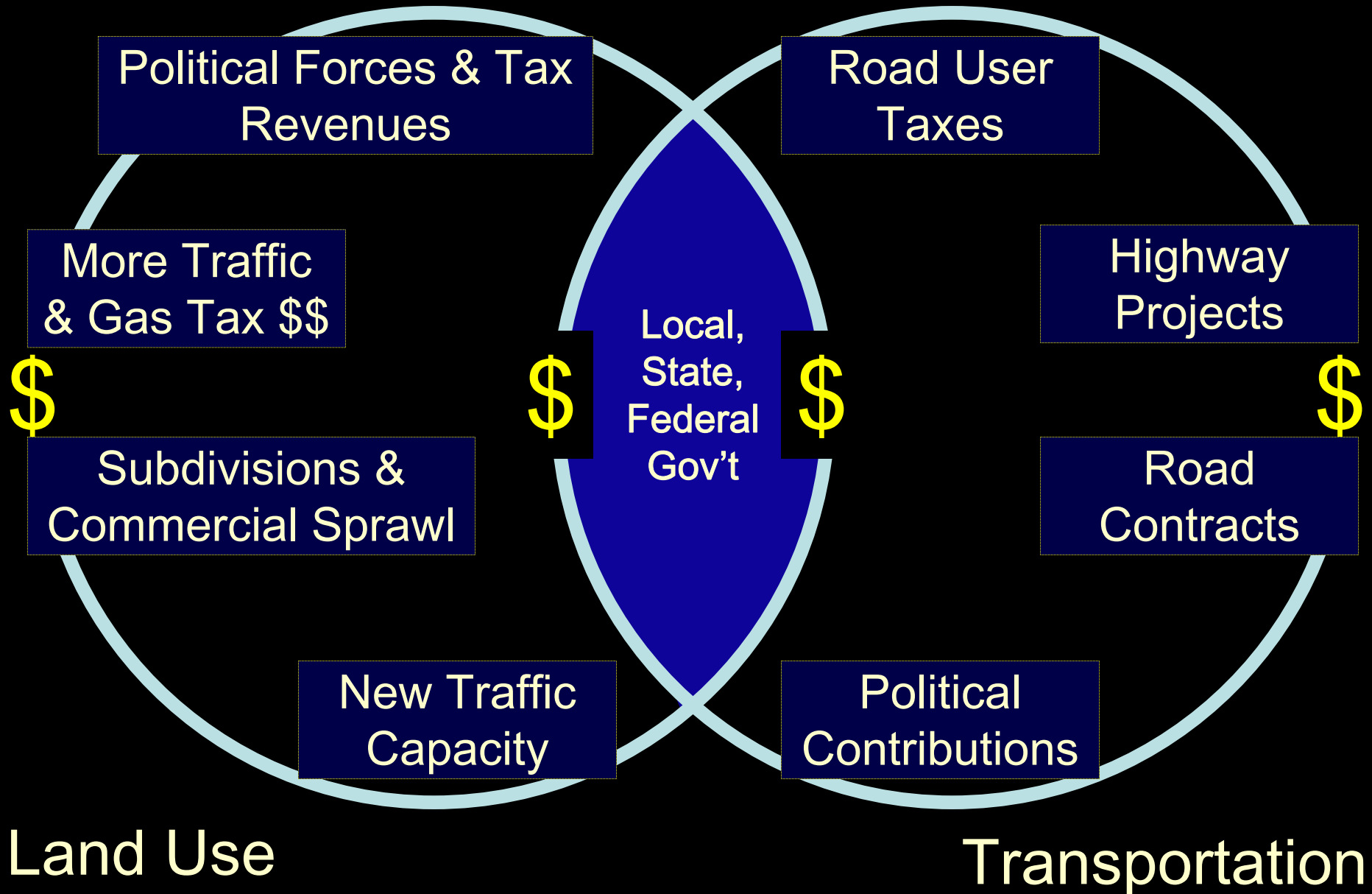


3. Improve Mobility
4. Reduce the Cost of Mobility

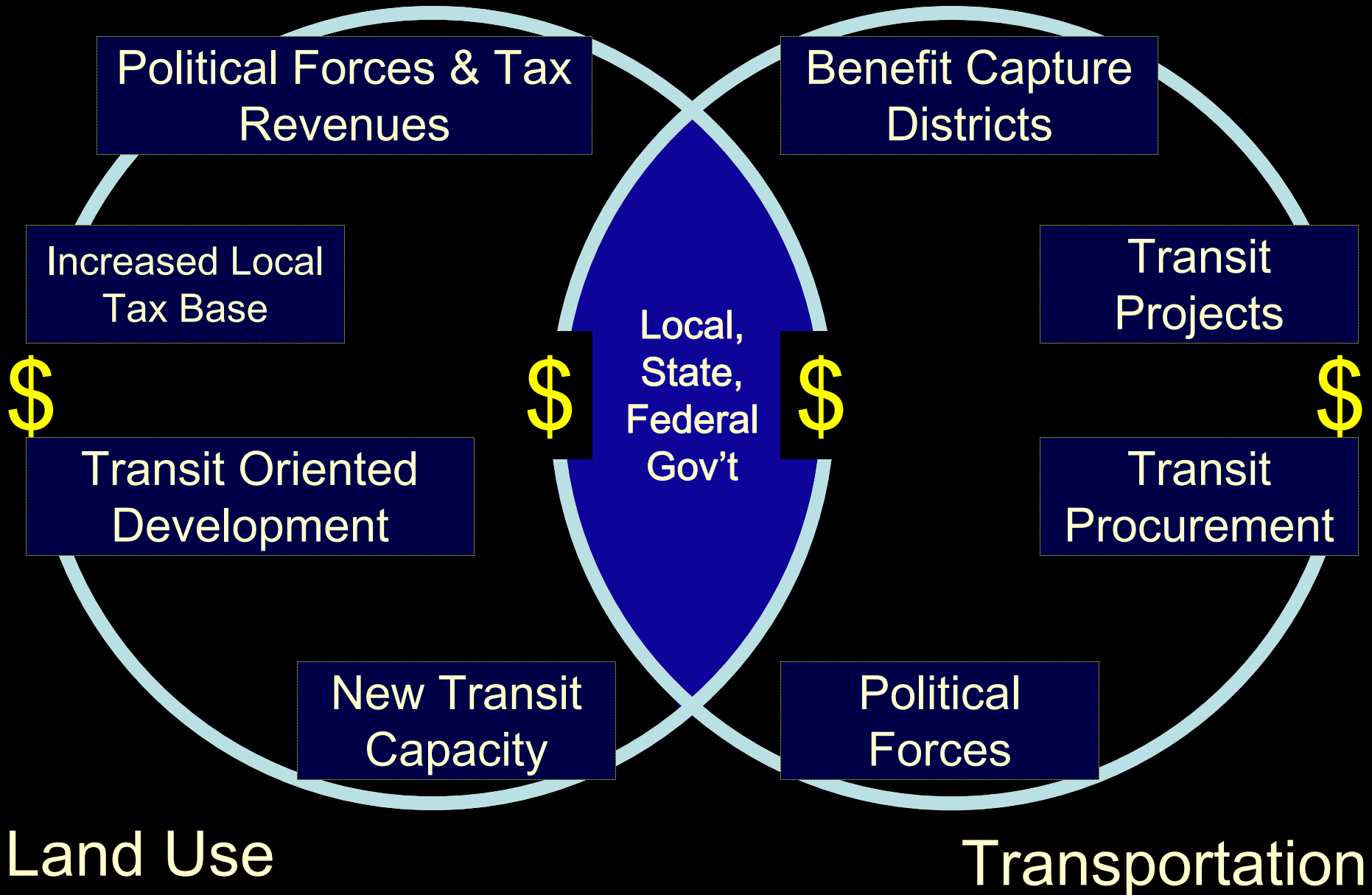
5 Things GreenTea Must Do



Self-Perpetuating Money Cycle



New Self-Perpetuating Cycle



Overall Policy Approach

1. Improve flexibility and increase modal choice in personal transportation
2. Adopt strategic economic approach:
 - Increase resilience to short term cycles
 - Anticipate and adapt to long term trends
3. Move beyond a gas-tax-only financing system



5. Improve Public Health

5 Things GreenTea Should Do



Overall Policy Approach

1. Make an investment in the health of our population because:
 - It is the right thing to do, and
 - It will save us money in the long run
2. Everyone has the right to active living in a clean environment

Next...

CAUTION:
Vehicle may be Transporting
Political Promises!

CALIFORNIA
P00 PMPR

Thank You



Charlier Associates, Inc.