Why You Should Care About

“GreenTea”
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

- Exploration, Initial Settlement
- Expansion of Cities & Suburbs
- 1893 Frontier Closes
- New Millennium

Population:
- 1600: 100 millions
- 1700: 200 millions
- 1800: 300 millions
- 1900: 1000 millions
- 2000: ??? millions

Years:
- 1600
- 1700
- 1800
- 1900
- 2000
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**: Private Transit Era
  - First Streetcar Systems
  - First Urban Rail Systems
  - Private Bus Systems

- **1945**: Streetcar Lines Abandoned
  - Urban Rail Systems Decay
  - Private Bus Systems Begin to Die

- **1970**: New Urban Rail Systems
  - Private Bus Systems Taken Over as Public Transit

- **1990**: Modern Urban Transit
40 Years of Surface Transportation Legislation

(VMT = vehicle miles of travel)
US DOT 2008 Budget – By Agency

($ Billions)

FHWA (Highways) $40.3
FAA (Aviation) $14.1
FTA (Transit) $9.4
FRA (Rail) $0.2
All Others $0.3

Total = $ 67.0
US DOT 2008 Budget – By Function

($ Billions)

**All Agencies**

- **Safety** $20.4 30%
- **Reduced Congestion** $36.6 55%
- **Global Connectivity** 2%
- **Environmental Stewardship** 10%
- **Security, Preparedness** 1%
- **Organizational Excellence** 2%

**Total = $ 67.0**
FHWA 2008 Budget – By Function

- Safety: $9.4 billion (23%)
- Reduced Congestion: $23.0 billion (57%)
- Global Connectivity: $0.3 billion (3%)
- Environmental Stewardship: $5.7 billion (14%)
- Security, Preparedness: $0.4 billion (1%)
- Organizational Excellence: $0.4 billion (1%)

Total = $40.3 billion
United States
Population & VMT

<table>
<thead>
<tr>
<th>Year</th>
<th>Pop. millions</th>
<th>VMT trillions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955</td>
<td>166</td>
<td>0.6</td>
</tr>
<tr>
<td>1980</td>
<td>227</td>
<td>1.5</td>
</tr>
<tr>
<td>2005</td>
<td>296</td>
<td>3.0</td>
</tr>
</tbody>
</table>

1955 to 1980: 178%
1980 to 2005: 500%
2005: 3.0 trillion
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 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
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Mobility Elements

- **Travel** – Moving over distances
- **Circulation** – Moving within areas
- **Access** – Getting in the door
Built for... Seattle

...travel Redmond
Built for... travel

Denver

Boulder
Built for...

...circulation

Redmond

Flagstaff
Built for...

Boulder

Portland

...circulation
Built for…

Boulder

Winter Park, Fl

…access
Built for...

Houston, TX

Minneapolis

...access
Travel

Access

Circulation

MOBILITY
The federal approach has been to invest in **travel** enthusiastically, but to resist investing in **circulation** and **access**
The “national” interest is limited primarily to intercity & interstate travel
We’ll also invest federal dollars in “congestion alleviation”
Freeways
Arterials
So, what about “congestion alleviation”
Have you ever noticed...?

- Predict Growth
- Widen Streets
- Forecast Traffic
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...

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”
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)

Phoenix

Very Large
Large
Medium
What we’ve learned about “congestion alleviation” -

1. Traffic Forecasting ≠ Planning

2. Congestion Alleviation = More Traffic
Emerging Megapolitan Regions

2/3 of the US Population
State Example: Arizona
5.1 Million People
14.1 Million People
State Example: Florida
FLORIDA 2060
A Research Project of 1000 Friends of Florida
17.9 Million People

Existing Developed Lands and Permanent Conservation Lands

Florida 2060: A Research Project of 1000 Friends of Florida
35.8 Million People
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
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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
Portland
1. Over Expansion of Urban Arterials

- Blightened 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
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
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)
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The Keeling Curve

CO₂ (Parts Per Million)


SOURCE: Scripps Institute of Oceanography
Stranded Polar Bears
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

Million Metric Tons

- Transportation
- Total – All Sources

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

Colorado
California

- Transportation: 41%
- Industrial: 23%
- Electrical Generation: 20%
- Agricultural: 8%
- Commercial: 3%
- Residential: 6%
Figure 4. Contributions to Emissions Growth, 1990-2020: Reference Case Projections (MMTCO2e)
Motor Vehicles & CO$_2$

**Figure 0-2**

Projected Growth in CO$_2$ Emissions from Cars and Light Trucks

- **VMT**
- **CO$_2$**
- **MPG**
- **Fuel GHG**
- **1990 CO$_2$**

*Source: EIA 2007.*
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*


Sources: VMT: EIA with 10% rebound  MPG: US Senate,  Fuels: C.
...Even With Very Stringent Standards
State Example: Arizona
Arizona Gross Greenhouse Gas Emissions
All Sources – Climate Action Plan

1990: 66.0 Million Metric Tons
2000: 89.0 Million Metric Tons
2020: 160.3 Million Metric Tons
2040: 50% below 2000 levels, 80% below 2000 levels

Governor’s Policy
Phoenix Valley Freeways

TTI Data - 2007

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th></th>
<th>2005</th>
<th></th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily VMT</td>
<td>19.4</td>
<td></td>
<td>28.4</td>
<td></td>
<td>+ 46%</td>
</tr>
<tr>
<td>Lane Miles</td>
<td>1,030</td>
<td></td>
<td>1,405</td>
<td></td>
<td>+ 36%</td>
</tr>
</tbody>
</table>

New roads needed to avoid increase in congestion: 412 lane miles per year
Arizona Gross Greenhouse Gas Emissions

Transportation Sources

<table>
<thead>
<tr>
<th>Year</th>
<th>Emissions (Million Metric Tons)</th>
<th>Governor's Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>25.3</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>35.0</td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>58.6</td>
<td>back to 2000 levels</td>
</tr>
<tr>
<td>2040</td>
<td>82.2</td>
<td>50% below 2000</td>
</tr>
</tbody>
</table>

- 80%
Annual Growth Rate to 2020: AZ Vehicle Miles of Travel

- Passenger Vehicles: 2.4%
  - + 61% in 20 years

- Freight Vehicles: 3.7%
  - > 100% in 20 years
State Example: Colorado
Gross Greenhouse Gas Emissions
Transportation – Colorado

Governor’s Policy
- 20% below 2005
- 39%
Colorado

Population & VMT

- Pop. millions
  - 1955: 1.5
  - 1980: 2.9
  - 2005: 48

- VMT millions
  - 1955: 7
  - 1980: 22
  - 2005: 4.7

Increase:
- Population: 313%
- VMT: 686%
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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
Time

Worldwide supply of oil

1.3 trillion barrels

42 years
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
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Price Trends

Highway Construction Index

1972: 30.0
1982: 81.3
1992: 106.8
2002: 142.2
2007 3rd Q: 309.9
Price Trends

Structural Steel #2 per lb.

<table>
<thead>
<tr>
<th>Year</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>0.45</td>
</tr>
<tr>
<td>1982</td>
<td>2.16</td>
</tr>
<tr>
<td>1992</td>
<td>3.07</td>
</tr>
<tr>
<td>2002</td>
<td>3.25</td>
</tr>
<tr>
<td>2007 3rd Q</td>
<td>7.70</td>
</tr>
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</table>
State Fuel Tax – Worth 30% of its Original Value

Relative Value of Colorado Motor Fuel Tax
Household Expenditures

- Housing: 32.9%
- Transportation: 19.1%
- Food: 13.1%
- Personal insurance and pensions: 9.9%
- Healthcare: 5.9%
- Entertainment: 5.0%
- Apparel and services: 4.0%
- Cash contributions: 3.4%
- Education & Reading: 2.2%
- Miscellaneous: 1.5%
- Personal care products and services: 1.3%
- Alcoholic beverages: 1.0%
- Tobacco products and smoking supplies: 0.7%
# Phoenix Valley Congestion Cost

*TTI Data - 2007*

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2005</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Travel Cost</strong></td>
<td>$983</td>
<td>$1,687</td>
<td>+ 72%</td>
</tr>
<tr>
<td>($ millions)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fuel Wasted per Traveler</strong></td>
<td>28</td>
<td>34</td>
<td>+ 21%</td>
</tr>
<tr>
<td>(gallons/yr)</td>
<td></td>
<td></td>
<td></td>
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A street near you
U.S. Walk Trips 1977-1995

Source: Nationwide Personal Transportation Survey, 1995
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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.
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

Air & Water Pollution

Greenhouse Gas Emissions

$$$$$ Cost of Travel $$$$$
3. Improve Mobility
4. Reduce the Cost of Mobility

5 Things GreenTea Must Do
Land Use

- Political Forces & Tax Revenues
- More Traffic & Gas Tax $$
- Subdivisions & Commercial Sprawl
- New Traffic Capacity

Transportation

- Road User Taxes
- Highway Projects
- Road Contracts
- Political Forces

Local, State, Federal Gov’t
Self-Perpetuating Money Cycle

Political Forces & Tax Revenues

More Traffic & Gas Tax $$

Subdivisions & Commercial Sprawl

New Traffic Capacity

Road User Taxes

Local, State, Federal Gov’t

Highway Projects

Road Contracts

Political Contributions

Land Use

Transportation
New Self-Perpetuating Cycle

- Political Forces & Tax Revenues
- Benefit Capture Districts
- Increased Local Tax Base
- Transit Projects
- Transit Oriented Development
- Transit Procurement
- New Transit Capacity
- Political Forces
- Local, State, Federal Gov’t

Land Use

Transportation
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!
Thank You