



Your Voice for Responsible Growth

Alaska Forum for the Environment 2009

Climate Change in Alaska:

Reducing Emissions in the Transportation and Land Use Sector

Reducing Transportation Emissions

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Earth's atmosphere
is as thick
as the skin
is to an apple.

Burning one gallon of gasoline
consumes **13 POUNDS** of oxygen from the air



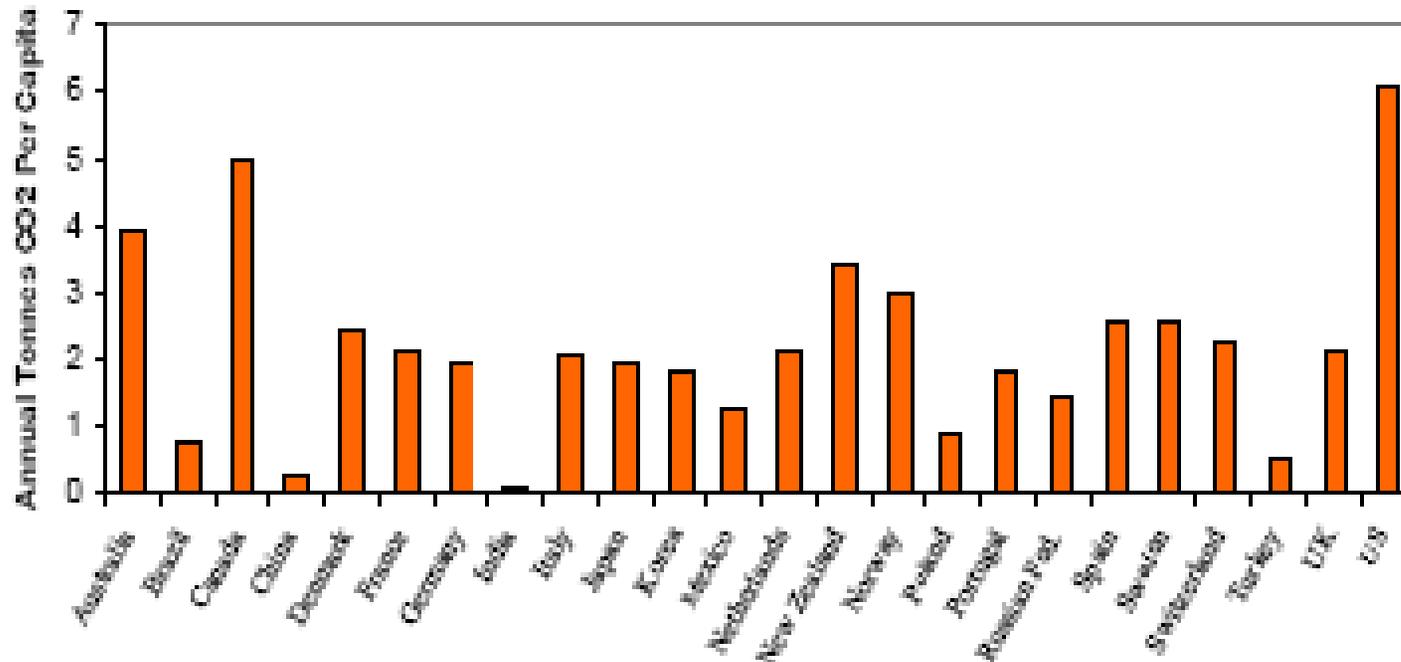
One gallon of gas
weighs about 6 LB



And when it's burned,
produces
19 LB of carbon dioxide

US citizens produce the most carbon emissions per capita, followed by Canada, then Australia

Figure 5 Transport Carbon Emissions Per Capita (OECD, 2007, Page 22)



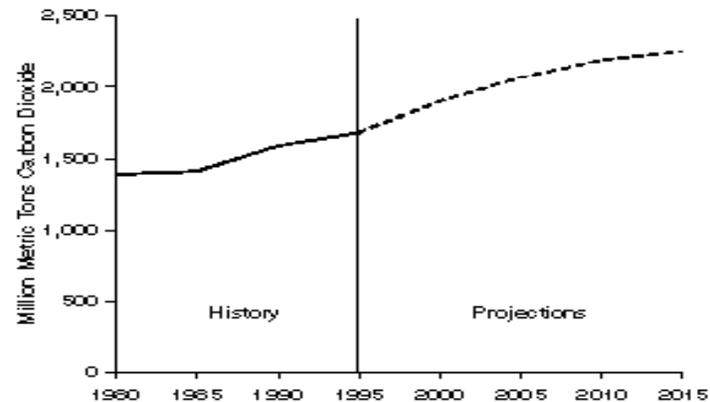
http://www.vtppi.org/ghg_valuation.pdf

Overall, the US is the largest emitter of GHG that cause global warming.

Transportation emits 1/3 of US CO2 emissions, and that share is growing.

Transportation emissions are projected to increase steadily over the next 25 years - in absolute tons and as a percent of all energy consumption.

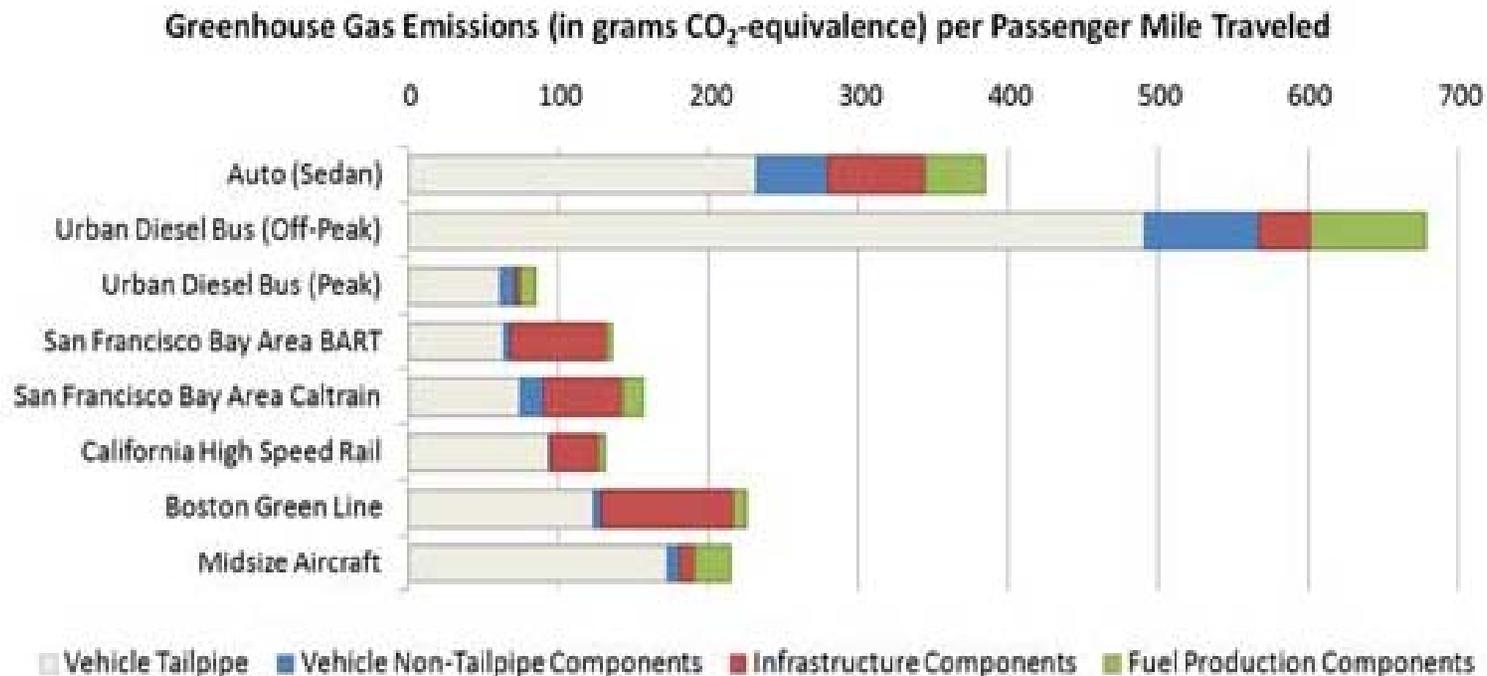
Figure 11. Trends in Carbon Dioxide Emissions from the U.S. Transportation Sector, 1990-2015



Growing Cooler: The Evidence on Urban Development and Climate Change 2007
<http://www.eia.doe.gov/oiaf/1605/archive/vr96rpt/chap4.html>

Autos emit the most GHG per passenger mile

Note: This chart illustrates “lifecycle emissions” tailpipe, infrastructure & non-tailpipe emissions



<http://www.its.berkeley.edu/newsbits/fall2008/lcaemissions.html>

**Barges, then Rail are most efficient to move freight
Air is least efficient
per ton mile**

	Cost	Fuel Use	Hydro-carbons	CO	NOx
<i>Units</i>	<i>Cents</i>	<i>Gallons</i>	<i>Lbs.</i>	<i>Lbs.</i>	<i>Lbs.</i>
Barge	0.97	0.002	0.09	0.20	0.53
Rail	2.53	0.005	0.46	0.64	1.83
Truck	5.35	0.017	0.63	1.90	10.1

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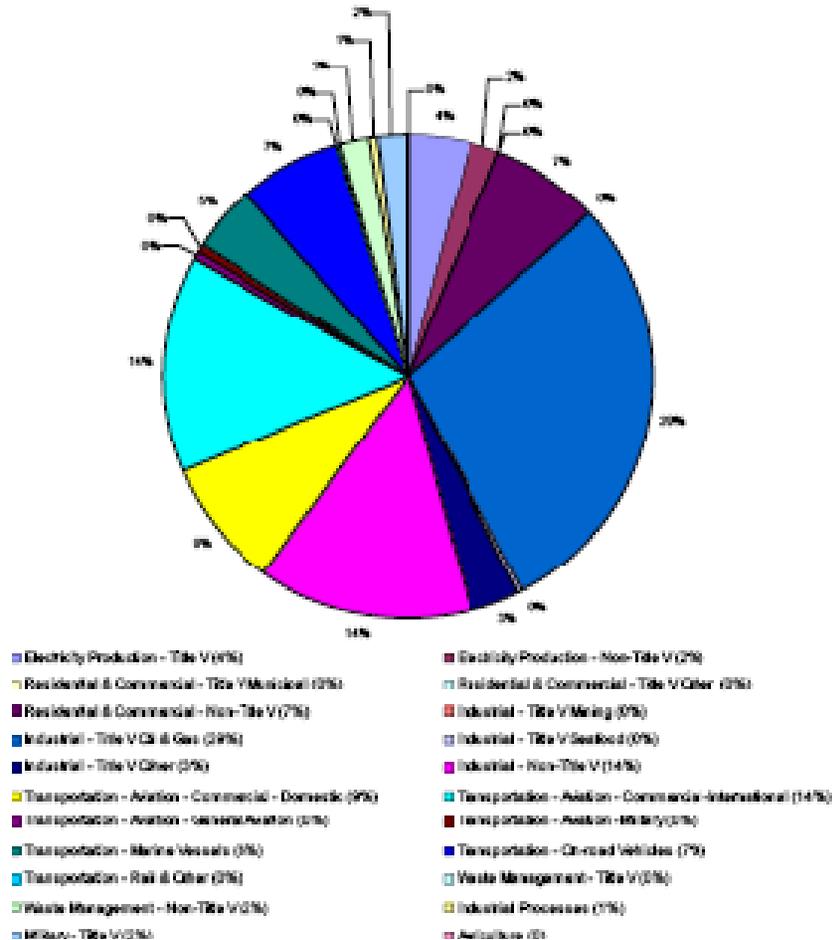
<http://www.vtpi.org/tdm/tdm16.htm>

David V. **Grier** (2002), "Comparison of Inland Waterways and Surface Freight Modes," *TR NEWS* 221, Transportation Research Board (www.trb.org), July-August 2002, p. 17; available at <http://gulliver.trb.org/publications/mb/TRNews221Features.pdf>.

Air freight is rated the least efficient, partly due to the fact that it carries low weight cargo. It emits 35 times more CO₂ than rail and 18 times more than road transportation on a ton-mile basis.

enfor<http://www.springerlink.com/content/t31153532x827857/ced>.

Estimated Percent Contribution of GreenHouse Gases



Alaska’s GHG emissions from transportation (12%) are dwarfed by its industrial (oil & gas) (29%) & commercial aviation (23%) emissions.

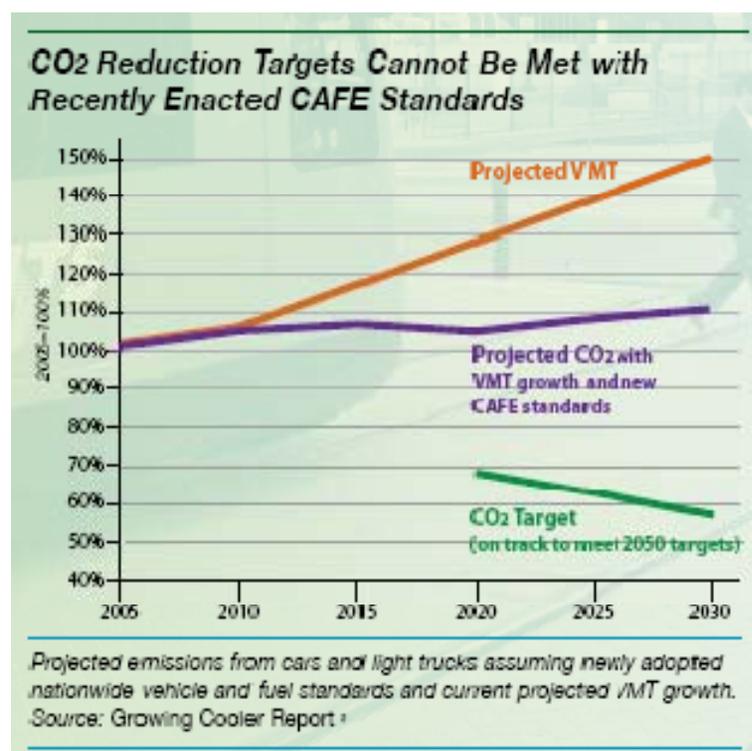
Oil, gas, aviation, rail and marine emissions are largely controlled by private industry.

On road GHG emissions are primarily influenced by public policy and investment, and there is great potential to reduce those emissions.

Improvements to the Alaska Greenhouse Gas Emission Inventory, January 2008, Alaska Dept. of Environmental Conservation

Technology won't be enough

GHG declines from more efficient fuels and vehicles expected to be overwhelmed by each of us traveling more miles



Reproduced from American Public Transportation Association, *Public Transportation Reduces Greenhouse Gases and Conserves Energy*, February 2008.

Some cities are addressing climate change in their transportation plans

MPO Region	Status of LRTP	Trends & Challenges	Vision & Goals	Policies & Strategies	Performance Measures
Albany, NY	draft August 2007			■	
Baltimore	adopted Nov 2007	■		■	
Chicago	updated June 2007		■		
Denver	adopted Dec 2007				
Eugene, OR	final draft Sep 2007			■	
Grand Rapids, MI	adopted April 2007	■			
Houston-Galveston	updated Oct 2007	■			
Missoula, MT	adopted May 2004		■		
Philadelphia	adopted 2005				
Portland, OR	final draft Jan 2008	■	■	■	■
Sacramento	draft Nov 2007	■		■	
Salt Lake City	adopted May 2007				
San Diego	adopted Nov 2007	■	■	■	
San Francisco	draft goals 2008		■		■
Santa Fe, NM	draft due 2009				
Seattle	adopted Spring 2008**	■	■	■	■
Southern California	adopted May 2008	■			■
Washington, DC	adopted Oct 2006				



WILLAPCO Air Quality Subcommittee Meeting Presentation by Diane Turchetta, FHWA Office of Planning, Env & Realty November 2008

It may be more challenging to find strategies to reduce transportation emissions in Alaska's villages than in our cities.



Air



Water – ocean and river



Rail



Highway

**Alaska's transportation plans build
more, bigger & faster highways.**

**Instead, plans need to consider climate change
– starting now.**

How can Alaska reduce GHG emitted by its transportation systems?

How do **public policy and spending** affect “mode share?”

- How much **freight** is moved by truck compared with rail and barge?
- How can government influence the number of people riding in each car?
- How many people **walk to work** or shopping – or school and why?
- Is it convenient to **take a bus**?
- Would **streetcars** be a good investment in Alaska's big cities?
- Should Anchorage invest in **commuter rail** to the Valley **before it provides bus service to the hillside**?

Seattle

- **Developed its Climate Action Plan in 2006.**
- Mayor Nichols provides **national leadership** with the US Mayor's Climate Change Protection Agreement, representing 25% of Americans by 2007.
- Goal to reduce GHG to 7% below 1990 levels by 2012
- Producing 8% less GHG 1992-2007



How?

- “City Center Strategy” promotes **growth, transportation, new housing downtown &** in 9 adjoining neighborhoods, expected to attract 65,000 new jobs, 56,000 new residents.
- Neighborhood Business District Strategy framework & incentives improve **walking & transit facilities, jobs, affordable housing, enhanced neighborhood “character.”**
- “Uptown in Motion” asks 500 residents to **drive alone two days less per week.**
- Sound Transit **light rail** will remove 1000’s of cars in 2009.
- Increase, improve **bus transit.**
- Add **bike lanes** to triple city’s 6,000 bike commuters

Portland Oregon

- **First US city to adopt climate change plan - 1993.**
- Reduced per capita GHG by 17% 1993-2007.
- Reduced GHG to 1990 levels by 2007.
- Goal is to reduce GHG 75% below 1990 levels by 2050.

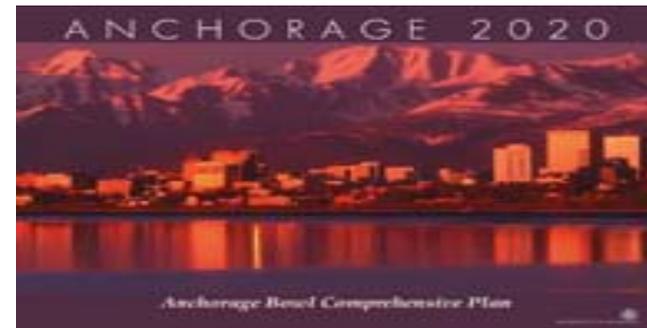


How?

- All Oregon communities are required to establish **comprehensive plans**.
- All Oregon **employers are required to reduce commuter miles** traveled.
- **Infill & redevelopment** supported by strong design standards.
- Increased **public transportation** use by 75% 1990-2005
 - Light rail lines expanded west, north and to the airport.
 - New 2001 streetcar line links downtown with NW neighborhood.
 - Parking spaces downtown capped.
 - No parking required for businesses within 500 feet of a transit line with 20 minute peak hour service.
- Increased commuting on foot, bike by 10% 1990-2000.
 - Adopted “**complete streets**” policy for walking, biking safety.
 - 150 miles of **new bike lanes & paths** added during 1990’s.
- Customized assistance to make it easier to take transit, walk, bike or carpool.
- Proposing **pricing strategies** for parking, road-use, lane-use and mileage to manage or distribute demand.

What can Alaska do?

1. Set a target and plan to reduce GHG emissions.
 - 20 states set GHG target reductions in law.
 - California & Florida targets are 80% below 1990 emissions by 2050.
2. Educate & involve the general public in GHG issues.
3. Work with cities to build transportation programs to reduce GHG.
 - Require **comprehensive plans** in order to receive state or federal infrastructure projects.
 - **Amend transportation plans** to reduce GHG.
 - **First fund projects that reduce GHG.**
 - Alaska DOT Project Scoring Criteria are open for public comment until March 2, 2009. DOT_STIP@dot.state.ak.us
 - Anchorage Project Evaluation Criteria under review muni.org/transplan
 - **Provide state funds to operate public transportation.**
 - Alaska is one of a handful of states that do not help with transit operations.



What can Alaska do?

- Work with cities to build transportation programs to reduce GHG.
(continued)
 - **Set targets** for reducing GHG for both **freight and passenger** travel.
 - **Link land use and transportation investments** to promote development that reduces vehicle travel.
 - Focus transportation investments in **existing communities**, first serving high density neighborhoods and employment centers.
 - **Build affordable homes near jobs & shopping.**
to promote walking, biking and public transportation
 - Build & maintain safe, comfortable **sidewalks & trails.**
4. **Alaskan communities used to be compact, walkable & fuel efficient. They can be again.**

