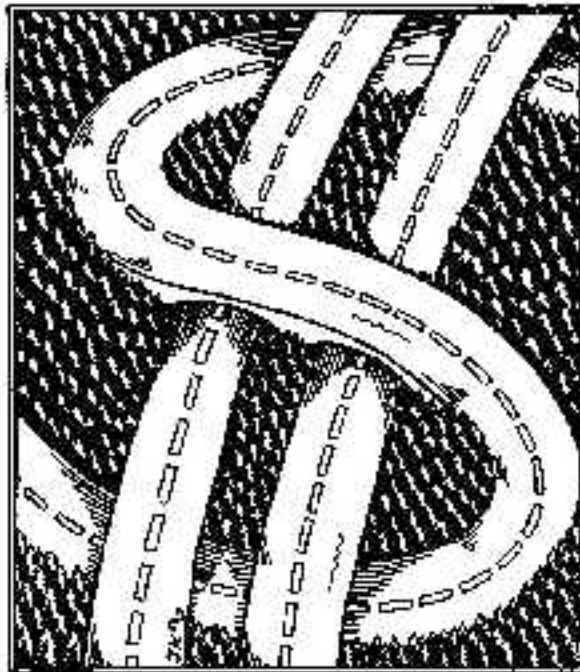


**comments on the  
Draft Environmental Impact Statement**

**Newberg Dundee Bypass  
Yamhill County, Oregon  
Highway 99**

**a billion dollar bailout  
for road construction companies  
and real estate speculators**

**Mark Robinowitz [www.road-scholar.org](http://www.road-scholar.org)  
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July 19, 2010**



**“fossil fuels are not in short supply at this time, and the use of these  
resources would not have an adverse effect on their continued availability.”**

**-- DEIS, p. 4-3**

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# Supplemental DEIS is needed

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## Peak Oil / Peak Traffic: a significant new circumstance

NEPA requires a Supplemental EIS when there are “new circumstances” relevant to a project’s development. If the end of cheap oil and the start of climate change are not relevant circumstances, then nothing is.

Federal aid highway expansion projects are predicated on the illusion that endless growth will continue into the indefinite future. However, the laws of physics and thermodynamics are not invalidated by wishful thinking embedded in governmental policies. Privately, many governmental officials and transportation contractors understand that Peak Oil and other fossil fuel depletion issues are going to have massive impacts on financing and operating large highway facilities. Projections for transportation increases need to be adjusted to reflect the reality of finite fuel supplies.

Some of the consultants and highwaymen at the DEIS hearing on June 29 were privately aware of the implications of Peaked Oil even if they could not mention it in the DEIS.

## DEIS failed to mention Peak Oil ... even the CRC DEIS admitted that Peak Oil exists

Laws of political physics:

For every expert, there is an equal and opposite expert.

Experts will travel in a straight line over a cliff unless external forces overwhelm inertia.

Experts will try to maintain equilibrium even when the system has become too unstable .

A critical morass of experts are impervious to inputs from outside the bureaucracy.

The Columbia River Crossing Draft EIS, published two years ago, was probably the first Federal Highway EIS to acknowledge the reality of Peak Oil, but unfortunately, the writers of this section failed to describe it accurately. That DEIS suggests that there is a maximum scenario for the year 2030 of \$100 a barrel for oil, yet this figure was reached on the first trading day of 2008, four months before the publication of the DEIS. It is astounding that there is no mention in the DEIS of the substantial rise in oil prices during preparation of this report.

One bright spot in the CRC DEIS was the mention of the Department of Energy’s Hirsch Report (2005), although the DEIS failed to mention the conclusions of this analysis. The Hirsch Report stated that we would need twenty years to mitigate the impact of Peak Oil, even if we were using toxic technologies such as coal-to-liquids and tar sands. While the Hirsch Report did not specify an opinion on when the Peak would be, oil production worldwide has been essentially flat since 2005 as new oil fields have had a difficult time making up for declining oil fields in the North Sea, Alaska, the Persian Gulf and other areas. Most geologists who have looked closely at the facts have concluded that we are now past the peak for “conventional oil” and almost at the peak for “all liquids” - the latter being a euphemism for including tar sands, natural gas liquids and other liquids that require nearly as much energy to produce as they contain. The consensus in the scientific community is that the era of easy to extract oil that has the maximum “energy return on energy invested” is over, and now we are entering the era of difficult to extract, expensive oil that will have less return on energy invested.

The largest oil fields in the world are all in obvious decline. Here in the western hemisphere, the largest single field is Cantarell in the Gulf of Mexico (on the Mexican side), and it peaked

around 2004 (the Association for the Study of Peak Oil and Gas - USA reports that Cantarell has dropped about 33% in the past year). The Alaska North Slope at Prudhoe Bay peaked in 1988, two decades ago, at about three quarter of a billion barrels for the year. In 2006, less than 300 million barrels flowed through the Alaska Pipeline. Even if the Arctic National Wildlife Refuge were opened to drilling, that development would merely slightly change the shape of the downslope. The Earth is finite, therefore there is only so much oil to extract.

Oil burned in Oregon comes primarily from the Alaska Pipeline via terminals and refineries in Puget Sound. Since this oil source will be largely expired by the design year of 2030, a Supplemental DEIS is needed to document what energy sources will replace depleting fossil fuels for the alleged traffic increases predicted in the NEPA document.

“Researchers do not expect the growth of petroleum demand in Oregon or in the project area to slow, due to the continued increases in population and vehicle travel. However, newer vehicles are more fuel-efficient and the federal government is requiring higher fuel efficiency in vehicles, which could change future demand for petroleum.”

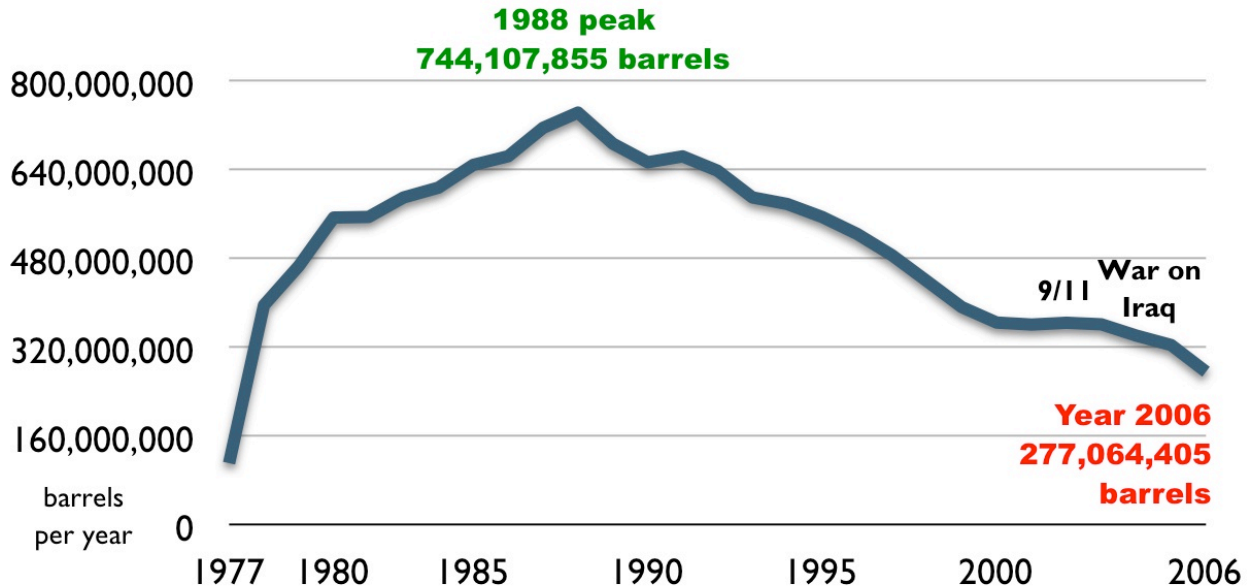
-- DEIS, p. 3-399

rebuttal: the issue is the AVAILABILITY of petroleum, not solely the demand. You cannot burn fuel that does not exist. As the easy oil dwindles and we are left with the difficult, expensive, hard to extract oil, access to it will be compromised.

Also, some cars will be more efficient but that will not quickly replace the existing vehicle fleet. A slow introduction of electric cars (using coal power on the western power grid) will barely mitigate the rate of oil field depletion.

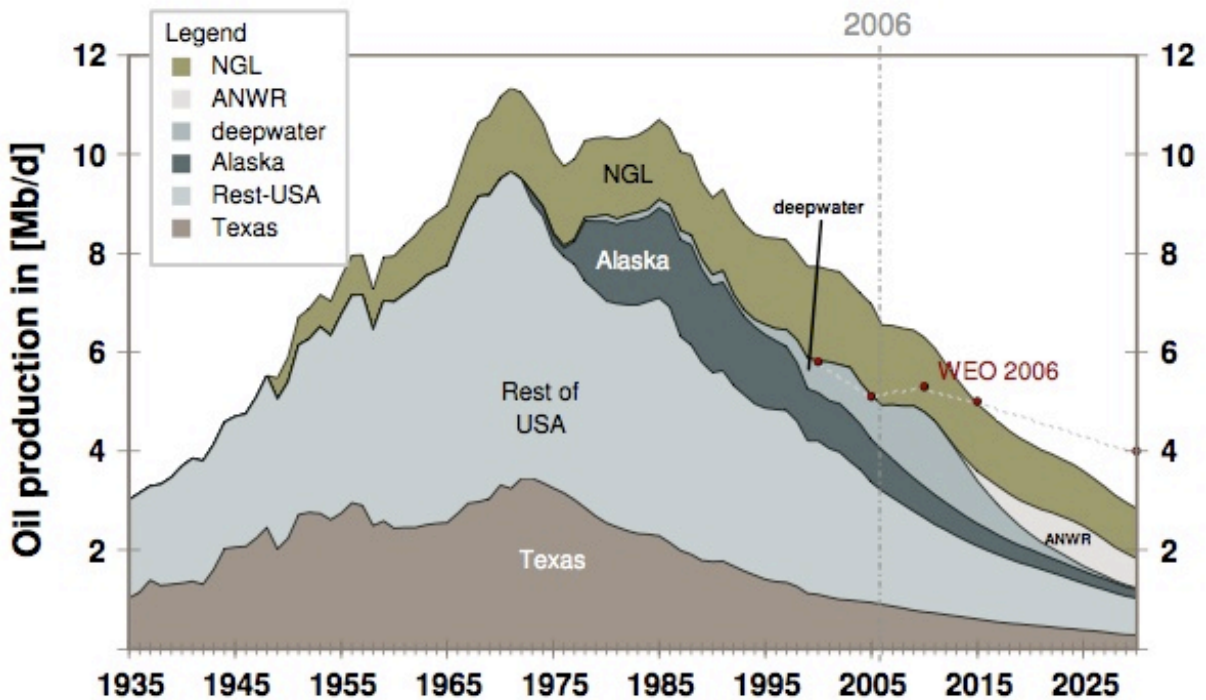
The section on greenhouse gas emissions (p. 3-405, 406) pretends that a serious effort to reduce putting fossil carbon into the biosphere is somehow compatible with expanding freeway networks. If the State of Oregon was serious about voluntary reductions of greenhouse gases, it would make it a felony to clearcut forests (one of our top greenhouse gas emission problems) and declare a moratorium on paving unpaved areas. Since these are not politically acceptable efforts, it seems clear that economic contraction will do more to reduce “greenhouse gases” than any sort of greenwashing pseudo-initiatives.

# ALASKA PIPELINE PEAK



posted at [www.oilempire.us/alaska.html](http://www.oilempire.us/alaska.html)  
 data source: [www.alyeska-pipe.com/Pipelinefacts/Throughput.html](http://www.alyeska-pipe.com/Pipelinefacts/Throughput.html)

Figure 29: Oil production in the USA



source: Energy Watch Group, 2007

*The concept of Peak Oil is not mentioned once in the Newberg Dundee Bypass DEIS.*

If reaching (or even nearing) the all time peak of conventional oil, or even of all liquids, is not relevant to a transportation planning document, then nothing is relevant to consider. It takes a lot of energy to manufacture the parts for a major freeway project, and a lot of energy to maintain the facility. Asphalt is made from oil. Fossil fuels are used to smelt the steel and make the concrete. While solar electricity and wind turbines are wonderful technologies, they cannot make the raw ingredients for highway construction. Furthermore, the decline of fossil fuel is likely to cause a parallel decline in a global financial system that is predicated on endless exponential growth that depends 100% on increasing levels of concentrated energy sources. This is a fancy way to say that the bypass is not going to be relevant to a near future where oil rationing and a permanent economic crisis makes maintaining even the existing road network much more difficult.

## Climate Change concerns

The state of Oregon has made lots of noise about how it is supposedly concerned about the threats that climate change poses, yet it has been reluctant to scale back projects that would increase fossil fuel pollution. The interstate “Western Climate Initiative,” much heralded in the media, somehow does not recommend a moratorium on polluting transportation projects, a shift of highway expansion funds to better transit and inter-city rail, or a prohibition on clearcut deforestation that is one of the main contributors to climate disruption.

Until the freeway network is declared complete, claims that governments are addressing climate change are merely hot air.

If the state wants to prepare for Peak Oil and Climate Change, we should use some of the money allocated for highway expansion toward European or Asian quality train service in the Willamette Valley.

## yes, we have no money

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The November 2008 report of the Governor’s Transportation Vision Committee estimated the Newberg Dundee Bypass cost as \$550 million. The DEIS raises this price to \$752 million to \$879 million. Since there is no plan to fund the full cost of the project, and ODOT has even contemplated tolling the bypass, further action on the NEPA process should be suspended due to insufficient funds.

Meanwhile, ODOT didn’t even have the state matching funds for a federal grant to study upgrading rail transportation between Portland and Eugene, so the only federal “stimulus” money that Oregon got a year ago for trains was merely to fix the leaky roof at the Portland train station. Washington State had its act together and got about a half billion dollars for track work.

**The new, low cost for the Newberg Dundee Bypass is about \$752 million. Since there are about eighty five thousand people in Yamill County, that would be almost nine thousand dollars per man, woman and child. Newberg and Dundee have about twenty five thousand people, so the cost of the bypass for those towns alone would be about thirty thousand dollars per person. It would be interesting to ask Newberg citizens if they’d rather have \$30,000 instead of a bypass.**

On the other side of Portland, the SDEIS for the Sunrise sprawlway stated:

“In 1996, the Clackamas County Board of Commissioners approved a conceptual alignment for Unit 1. Due to the lack of foreseeable funding, a Final Environmental Impact Statement (FEIS) was not completed and the project was put on hold.”

If this project was not affordable when the price was about a quarter billion, it is even less likely to be affordable with the low price at five times the previous amount.

Since the State of Oregon is going broke, cutting schools, health care and other vital services, to build a new bypass after Peaked Oil is one of the most irresponsible uses possible of our public funds. Using some of the remaining oil to build more highways after Peaked Oil will seem incomprehensible to future generations who will be astounded by our collective stupidity.

### **New Circumstances: Peaked Oil and Climate Chaos**

NEPA states when there are “new circumstances” relevant to a project they must be considered. The reality of climate change and peak oil are of critical importance to any project dependent on vast amounts of fossil fuel combustion (for construction and operation). If climate change is not something to factor in for this project, then nothing is relevant to this project. This is not a speculative concern (such as the timing of the next large eruption from Mt. Hood or the next Cascadia Subduction Zone earthquake, which might or might not occur during our lifetimes). Climate change and peak oil are here, now, and are likely to have major disruptions to this project before the projected construction date.

The largest oil field in the western hemisphere - Cantarell in Mexico - will probably be either completely depleted or depleted to the point of near irrelevance before construction starts, which is likely to have severe impacts to US oil supplies. There are no supergiant oil fields waiting to replace the flows from Cantarell, this will be oil that merely is not replaced when it is gone. Even the Arctic National Wildlife Refuge oil fields is only a small percentage of the prize that was Cantarell -- the only question for the upcoming oil shocks are the timing and public response. The Earth is round, and therefore finite, so there is only so much oil that can be extracted and burned. Most of the oil fields that are thought by geologists to be potentially available have already been located and are being exploited, although precise figures on petroleum supplies are subject to official secrecy and manipulation for political and economic purposes. However, the phenomenon of exponential growth in energy consumption means that widely divergent estimates of oil supplies are not that relevant for long term energy planning, since regardless of which figures are ultimately proven correct, the fact that supplies cannot keep up with growing demand are obvious.

Building more freeways and edge cities to combat climate change is an Orwellian version of environmentalism - war is peace, ignorance is strength, more roads will help us solve pollution.

The “Energy” section needs to mention the price impacts of petroleum on driving. The “potential mitigation measures” have no analysis to determine the scale and effectiveness of these initiatives, and need to be fully examined in a new SDEIS.

It is likely that petroleum supplies will decrease faster than the average fuel efficiency of the nation’s automobile fleet. Energy efficiency of trucks and vans used in the study areas are not likely to change substantially in the coming years.



## **Background information**

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### **Peak Oil requires a Peak Traffic Alternative**

*I support transit extended further into Yamhill County as a substitute to the Bypass.  
I support expanding this project to include Amtrak and freight rail, including consideration of existing plans for high speed passenger rail between Eugene and Vancouver, B.C.*

**I support improved bus public transit to connect people to the rail stations.**

**I support paying for the transit systems by redirecting highway funds and increasing gas taxes (the light rail line to Gresham was paid for with money appropriated for the Mount Hood Freeway). Rebates need to be considered to mitigate these impacts on lower income people. There is no technical reason why public transit should not be free.**

**Even if the Bypass is built, ODOT will still have to make repairs to part of Highway 99 paralleling the proposed bypass route since part of the road lacks a median for making safe left turns.**

**The fact that a new Land Use (or abuse) exception is still needed for the project shows poor planning (and excessive planning) by ODOT. Since ODOT has already made claims for a particular footprint outside the Urban Growth Boundaries for the highway, the agency should stick to the exception already granted.**

**Part of the bypass would be to facilitate Portland car traffic to the beach (and a casino on the way to the beach). Expanded intercity bus service needs to be given serious attention as a partial alternative to the bypass, since in the year 2030 fossil fuel availability will be severely limited as the world's oil fields continue to be drained.**

**A SDEIS is also needed to examine the potential of the parallel rail route for facilitating intercity travel between Newberg, Dundee, McMinnville and the Portland metro area, especially for the commuter traffic that is presumably a large part of the current traffic issues. Intercity bus service for commuting is also in need of expansion.**

**Bottom line: the future will not be like the past and ODOT's planning needs to recognize the reality that global oil extraction has peaked and we will be lucky to hold things together on the downslope. Wasting more fossil energy on steel and concrete and asphalt for bypasses that will not be needed after gasoline rationing just makes these problems much worse.**



*I do not support creating a surveillance system to keep track of everyone's travels through RFID, Automatic License Plate Recognition and / or GPS enabled "mileage tax" tracking systems.*

I do not support traffic analyses that assume substantial rises in travel demand even though we have reached Peak Oil and Peak Traffic.

A supplemental draft environmental impact statement (SDEIS) is needed to factor in Peak Oil and peak traffic, which invalidate the traffic growth projections used for this project.

**Before the rubber stamps are used, the FHWA, ODOT, and local governments must consider that the National Environmental Policy Act states that if there are "new circumstances" that impact a project, then they need to be factored in to the analysis. The fact that we have reached the end of cheap oil (peak oil) and the start of climate change needs to be factored into the long term "needs" analysis.**

**The design year for this highway expansion is 2030 -- long after Peak Oil. Therefore, the traffic needs analysis needs to be changed to reflect the fact that there will be much less fossil fuel available for personal transportation on the downslope of "Hubbert's Curve."**

We are at the peak of travel, which can only decline as the energy sources used to power (and manufacture) automobiles and trucks begin to decline. The project is designed for twenty years in the future, not current travel demands, yet "peak traffic" has already happened and we are now at Peak Oil. Future increases in gas prices and decreases in gas availability will drop total vehicle miles traveled (the only question is how quickly).

This would save money that could be used toward fixing or replacing other damaged bridges such as the crumbling Sellwood bridge.

If the DOTs ignore geological (and financial) realities, then it would be best to save our money by dispensing with the pretense of public input and let the DOTs do anything that it wants without the illusion of oversight. As the lawyer said to the oil man in the film SYRIANA, "we are looking for the illusion of due diligence."

## **Troubled Bridges Over Water: Time for Transportation Triage**

**"Another flaw in the human character is that everyone wants to build but nobody wants to do maintenance"**

**-- Kurt Vonnegut**

The notorious collapse of the I-35W bridge in Minneapolis in 2007 points out the dangers of deferring maintenance in favor of building more and more roads -- a change in priorities is long overdue.



Oregon's highway network is riddled with aging bridges that no longer can support existing traffic flows because their structures are wearing out. As we shift from an era of cheap energy and abundant economics toward the era of expensive energy and conservation, it will become more difficult to repair or replace cracked bridges. **Plans by ODOT to spend nearly twenty billion on new and wider freeways when there is a huge backlog of damaged bridges is dangerously neglectful of the need to keep the existing network functional. Repairing or replacing these damaged bridges at the same width as existing structures - not using the real crisis of worn out bridges as a way to widen major highways - is a bigger priority than expanded highway capacity to subsidize speculative suburban developers.**

An ODOT planner told me a few years ago that the Department's priority was to keep I-5, I-84, Route 20 and Route 97 intact, and that other routes were not as much of a priority. A better approach to "transportation triage" would be to focus on maintaining the existing system before even planning to make expansions to capacity, even without considering the issues of Peak Traffic.

Oregon still allows heavier trucks on its roads than California or Washington permit. Shifting some of this freight traffic to railroads would reduce energy consumption and protect our highway bridges.

We can choose as a society to either expand the highway system some more (NAFTA Superhighways, more Outer Beltways and bypasses, **etc**) or **focus on making sure that the existing network can be maintained after Peak Oil**. Unfortunately, few politicians highlight the need to make AMTRAK a serious transportation system for efficiently moving people. A national priority for quality train service would create a lot of good jobs, reduce energy consumption, and make it more likely that the United States will be able to mitigate the inevitable impacts of the end of the petroleum era. Proposals for the 80 new "corridors" in the SAFETEA-LU highway expansion law are a preventable trillion dollar misallocation of resources.

It is likely that about \$1 trillion has already been spent to destroy the nation of Iraq (if preparations for the conflict are included), home to the planet's second largest oil reserves. This is more than half of the cost that has been estimated for rebuilding the tens of thousands of deficient highway bridges that are aging and becoming dangerous.

There are several serious - but languishing - proposals for high speed rail in the United States that would be similar to European and Asian networks. Building all of them would probably cost less than the money spent on the War on Iraq.

## Peak Traffic:

### The Achilles Heel of Highway Expansion Plans

As the world passes the peak of global petroleum production, gasoline prices are likely to increase to the point that traffic demands on roads will be reduced. While it is impossible to accurately predict the price of fossil fuels in the design year of 2030, it will be surprising if gasoline is not rationed on the downslope of the Peak Oil curve (either directly by ration cards or indirectly by pricing it out of reach of many who currently consume it). While so-called alternative fuels exist and there are vehicle designs much more efficient than current models, they are only going to be able to mitigate the energy downslope. Carpooling is going to be more important than hybrids.

US federal transportation law requires that new federal-aid highway projects consider the traffic demand twenty years in the future. In the 1991 ISTEA law, a provision was added to federal highway approvals that requires all highway plans in a metropolitan area to fit into a regional long range transportation budget to avoid a form of fiscal segmentation. If a metro area wants lots of new roads, they have to show how the projects could be paid for (federal and local funds) over a 20 year period. Approving a project that lacks funding is therefore a form of segmentation. The funds need not be available when construction begins, but the entire project has to fit within a constrained transportation budget - a process similar to buying a home with a mortgage (a home buyer has to show their potential ability to raise all of the funds over the span of the loan).

While no one, not even Dick Cheney, knows precisely what will happen with Peak Oil, to ignore it completely and make more “growth” projections and traffic models that assume constant supplies and pricing of petroleum is delusional. **When FHWA finally requires energy analyses in NEPA documentation, they could examine a range of scenarios: gasoline at \$10 per gallon in 2030, gasoline at \$100 per gallon in 2030, and gasoline not available to the public in 2030 (only to elites and the military)**

As the world passes the peak of global petroleum production, gasoline prices are likely to increase to the point that traffic demands on roads will be reduced. While it is impossible to accurately predict the price of fossil fuels five, ten, or twenty years in the future, it will be surprising if gasoline is not rationed on the downslope of the Peak Oil curve (either directly by ration cards or indirectly by pricing it out of reach of many who currently consume it). US federal transportation law requires that new federal-aid highway projects consider the traffic demand twenty years in the future -- so the reality of Peak Oil and climate change means that the continent wide rush to build more bypasses, wider bridges, Outer Beltways and NAFTA Superhighways will not be needed. There are no road projects known to this writer anywhere in North America that have been scaled back or canceled because of Peak Oil and Peak Traffic.

The website [www.road-scholar.org](http://www.road-scholar.org) suggests some political and legal strategies to prevent this trillion dollar misallocation of resources so that real solutions can be implemented:

- repair or replace worn out bridges (but not with wider bridges) while we still have oil
- invest in public transit & Amtrak
- get ready to travel less
- grow food in the cities (community gardens) and suburbia (food not lawns) to reduce oil dependence of industrial agriculture

Euan Mearns on June 11, 2008 - 4:42pm

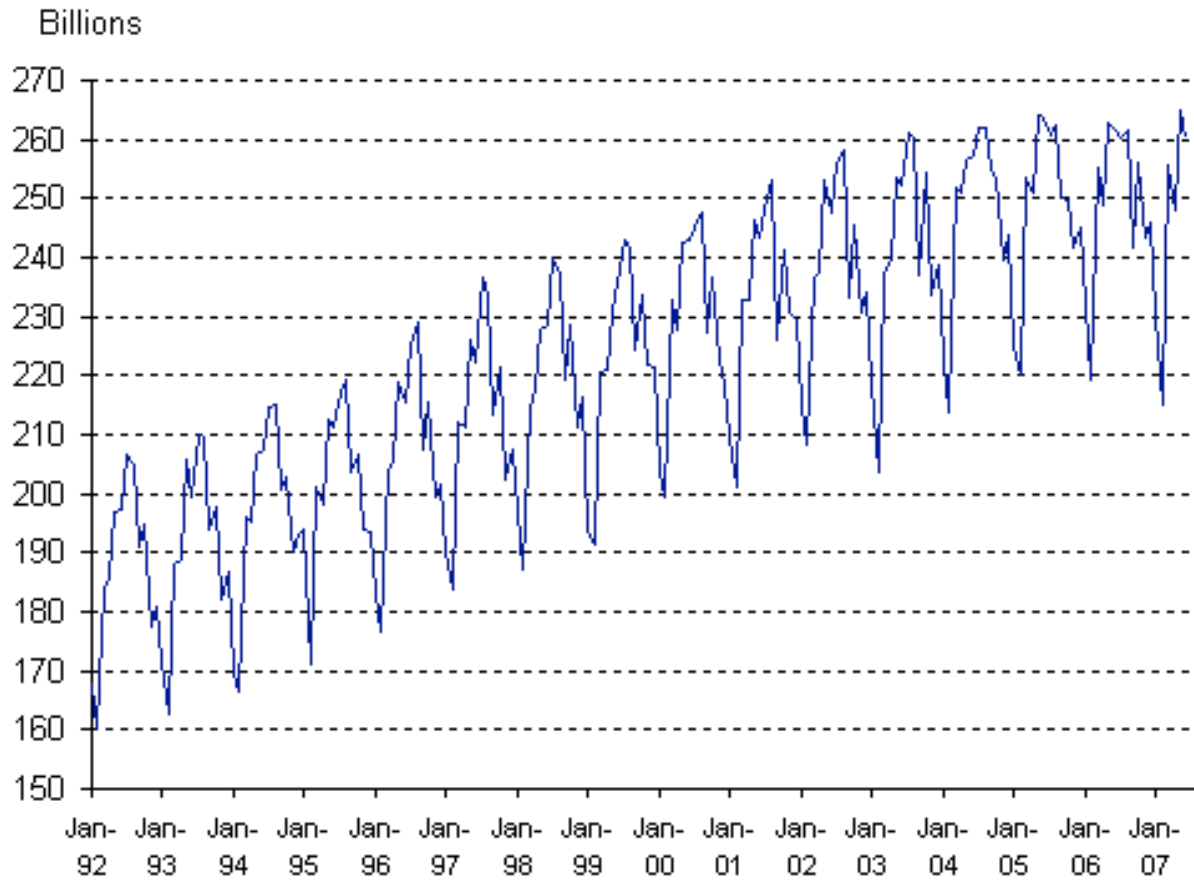
Its really hard to come to terms with the number of corporations, government agencies, consultancies, civil service departments and politicians who seem incapable of comprehending a trend break or trend reversal. Collectively they would have been incapable of working out that the wheel may change transport.

<http://europe.theoildrum.com/node/4130#comment-359871>

## **Vehicle Miles Traveled (VMT) has Peaked**

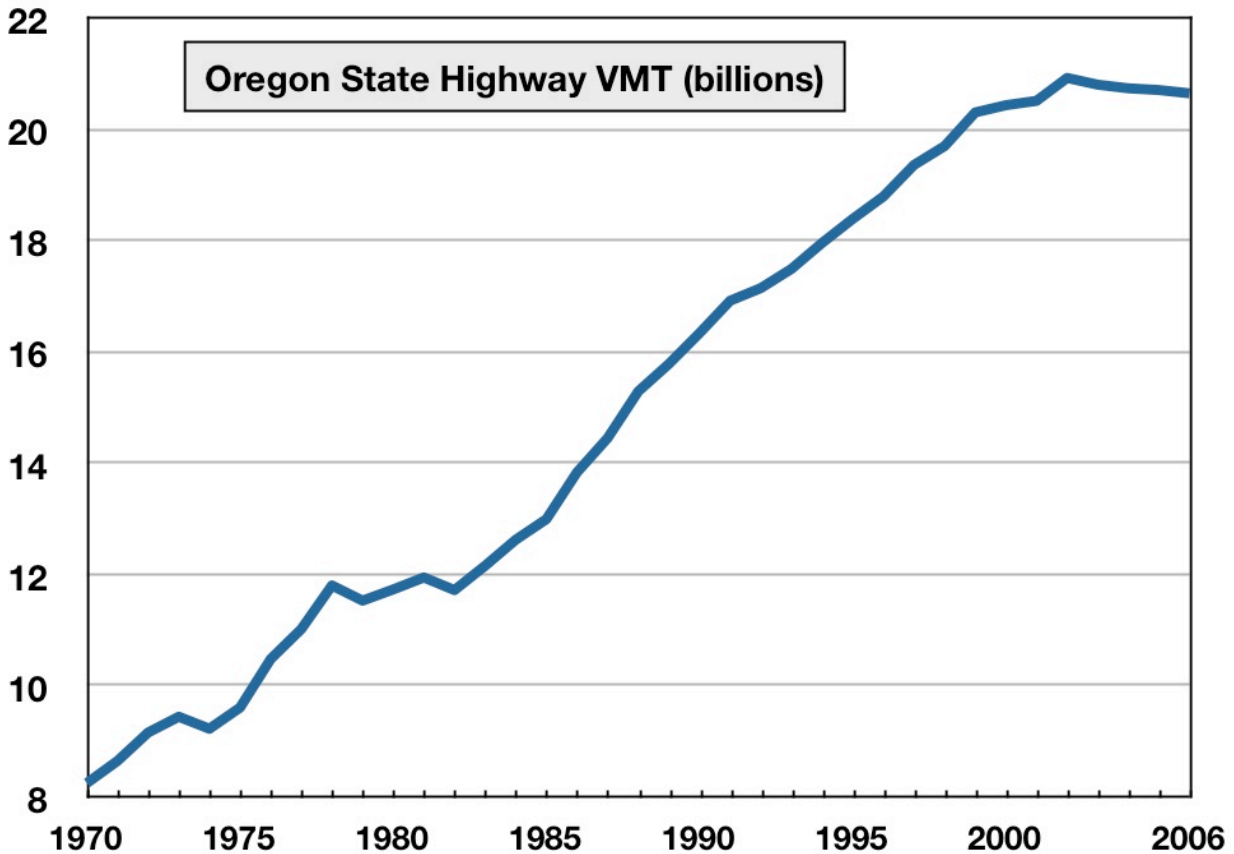
Three dollar a gallon gasoline caused the constant increase in traffic to stop, four dollars a gallon gasoline has precipitated an overall decline in traffic levels. The decline of gasoline costs in the Fall of 2008 (before the Presidential election) eased slightly the strain on motorists' budgets, but this was offset by the financial collapse causing great worry about where the fossil fueled powered global economy is going to descend, and also a recognition that gasoline prices could easily climb back to unaffordable levels, especially once the oil flow declines in the years to come. People who are worried about becoming unemployed spend less on fuel, and therefore drive less.

## US Department of Transportation Bureau of Transportation Statistics



[www.bts.gov/publications/white\\_house\\_economic\\_statistics\\_briefing\\_room/august\\_2007/html/highway\\_vehicle\\_miles\\_traveled.html](http://www.bts.gov/publications/white_house_economic_statistics_briefing_room/august_2007/html/highway_vehicle_miles_traveled.html)

traffic levels vary through the year  
(there is more driving in the summer than the winter)



Oregon state highway VMT data from  
[www.oregon.gov/ODOT/TD/TDATA/tsm/vmtpage.shtml](http://www.oregon.gov/ODOT/TD/TDATA/tsm/vmtpage.shtml)

**1973: dip due to Saudi oil embargo**

**1979: dip due to gas lines after Iranian revolution**

**2002: peak traffic on Oregon highways**

This chart from ODOT shows that traffic levels on Oregon State Highways have peaked and are now on a plateau, mostly because of the increasing price of oil. The US Dept of Transportation Bureau of Transportation Statistics shows that national Vehicle Miles Traveled peaked in 2005. In May 2008, the Federal Highway Administration stated that March 2008 was the sharpest decline of traffic recorded since they started keeping detailed records - it was 4.3 % less than March 2007. We are on a plateau of traffic that will last as long as oil remains relatively affordable.

**The current dip in VMT is not temporary,  
 it is more like climate change, a permanent shift in the way things work.**



## **SDEIS needed for “new circumstance” of Peak Oil & Peak Traffic**

NEPA mandates that a “Supplemental” EIS must be prepared if there are "new circumstances" not anticipated when the scoping process was conducted. Surely reaching the peak of petroleum production worldwide is an important circumstance for a transportation project allegedly designed for travel long past the peak of petroleum.

If FHWA included Peak Oil into environmental analyses for highway projects, this could create a seismic shift in transportation planning across the United States, allowing for honest public discussion about energy and transportation policies. There are several ways this shift could happen: a successful Federal lawsuit forces FHWA to include Peak Oil, the start of gasoline rationing makes transportation planners consider alternatives, or a change in national policies (probably the least likely in the near future).

## **Council on Environmental Quality regulations implementing NEPA**

**40 CFR 1502.9: Draft, final and supplemental statements.**

**(c) Agencies:**

**(1) Shall prepare supplements to either draft or final environmental impact statements if:**

**(i) The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or**

**(ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.**

## **Federal Highway Administration regulations about NEPA**

**23 CFR § 771.130 Supplemental environmental impact statements.**

**(a) A draft EIS, final EIS, or supplemental EIS may be supplemented at any time. An EIS shall be supplemented whenever the Administration determines that:**

**(1) Changes to the proposed action would result in significant environmental impacts that were not evaluated in the EIS; or**

**(2) New information or circumstances relevant to environmental concerns and bearings on the proposed action or its impacts would result in significant environmental impacts not evaluated in the EIS.**

## **The End of the Age of Oil: exponential growth is over**

Peak Oil does not mean that civilization is about to run out of oil. Instead, we are near (or at) the point where continued growth of petroleum combustion no longer can be maintained, which will have profound consequences for the global economy that is dependent on exponential growth of nearly everything (especially of money supplies). Energy creates the economy, a physical limitation rarely acknowledged by economists. Peak Oil is also the point where the maximum amount of economic "growth" is reached -- and ideally a turning point where we can decide to use the remaining half of the oil as a bridge toward a more sustainable way of living. It would require enormous energy, money and people power to reorient away from NAFTA



Superhighways toward investing in bullet trains, away from dirty fossil fuel technologies toward efficiency and renewable energy systems, away from resource wars and toward global cooperative efforts to reduce our collective impact on the planetary biosphere.

## **why alternative fuels and efficient cars won't make much difference**

Renewable energy systems are largely focused on generating electricity. Transportation systems are almost entirely based on burning liquid fuels, which are not generated by solar PV power or wind turbines.

A bigger problem is that by the design year of 2030, natural gas supplies from the western US and Alberta are likely to have dropped so low that they will no longer be able to be used to generate electricity -- the remaining gas will be needed to heat buildings, especially in the colder climates where the gas is extracted from. Whatever renewable energy systems are installed between now and then will need to replace the substantial inputs that natural gas has for the western electric power grid at the same time that there is less available energy to manufacture solar panels and wind turbines.

All of the major car companies have developed much more efficient vehicles (Greenpeace, "The Environmental Impact of the Car," 1992), with many models around 100 mpg. VW even has a small model that is highway rated that gets about 250 mpg -- the VW CEO drove it to their annual stockholder meeting a few years ago. While technological shifts may help mitigate the energy crisis after Peak Oil, it cannot eliminate the problem. There are no factories to make these vehicles. There are no capital investments to fund the conversion of existing factories to make hyper-efficient cars. The existing fleet of vehicles are not going to be instantly eliminated in favor of efficient cars, as the owners have invested heavily in their current models -- someone who bought a \$50,000 SUV is not easily going to be able to absorb the loss by purchasing a new car that is more efficient. At best, the investment in more efficient vehicles may slow the decline of VMTs on the Peak Oil downslope -- but it cannot prevent that decline. There is also the problem of substantial use of oil and mineral ores to manufacture new cars, even efficient ones. Carpooling is a more promising short term mitigation than hoping for 100 mpg cars.

The main source of "liquid fuels" likely to be promoted in Cascadia is conversion of third growth forests and tree plantations to biofuels. While this could make sense on a small scale, as the downslope of Peak Oil becomes more obvious, there will be immense pressure to liquidate forests and convert them into fuel for cars and trucks and other vehicles. Widespread deforestation to create liquid fuels from tiny trees could result in massive carbon dioxide generation -- since the best form of carbon sequestration is to allow forests to return to old growth conditions. Here are some references to consider on this topic:

Mark Harmon

Professor and Richardson Chair of Forest Science

Oregon State University

[www.cof.orst.edu/cof/fs/people/faculty/harmon.php](http://www.cof.orst.edu/cof/fs/people/faculty/harmon.php)

<http://outreach.forestry.oregonstate.edu/silvopt/abstracts/harmon.htm>

Forest Management Strategies for Carbon Storage

Olga Krankina  
Assistant Professor, Sr. Research, Forest Management, Forest Ecology  
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[www.forestry.oregonstate.edu/cof/fs/people/faculty/krankina.php](http://www.forestry.oregonstate.edu/cof/fs/people/faculty/krankina.php)  
several articles by Professor Krankina

Lance Olsen  
former president, Great Bear Foundation. Missoula, Montana  
[www.tidepool.org/features/forest.climate.cfm](http://www.tidepool.org/features/forest.climate.cfm)  
Swiss Army Knives  
How Deforestation Changes the Climate  
by LANCE OLSEN [posted.5.10.01]

## 2030 design year is past peak

The key points for understanding Peak Oil:

- (1) the oil will take decades to run out, peaking is not the same as running out
- (2) the exact shape of these curves will probably be different than these predictions,
- (3) the issue is when supply no longer keeps up with demand, not when it runs out, and
- (4) after the peak, the OPEC countries in the Middle East will have most of the remaining oil

Peak Oil is not about "when the oil will be gone" but rather when demand begins to outstrip supply and production / extraction peaks globally. There probably will be oil extraction for several more decades, although the current perceived abundance (one can buy as much oil as one can afford) is likely to last only a few more years. While petroleum geologists debate the exact timing of the global peak (ranging from essentially now through the middle of the next decade), there isn't any debate about the reality of Peak Oil. Even the most pollyanna view puts the peak at around 2030, although the most experts estimate that somewhere between 2005 and 2012 is more accurate. One factor for determining future levels will be economic forces -- if the global economy crashes into a depression, this would reduce energy consumption rates, making the peak lower and longer lasting (the best possible scenario for using some of the oil as a bridge toward the renewable energy, locally based society). If the economy heats up, then the peak could be higher but shorter, with the downslope coming sooner and steeper. Whatever the exact year, the days of wasteful overconsumption are limited

The only "debate" about peak oil is the exact timing -- from a long term historical perspective, it does not matter whose predictions about the exact year of peak and decline ultimately prove to be correct.

The world is now on the Petroleum Plateau, which will drop off sometime after 2010.

from the Association for the Study of Peak Oil, February 2008 (prepared 2008-01-04)

Colin Campbell, February 2008 issue of ASPO Ireland  
[www.aspo-ireland.org/contentFiles/newsletterPDFs/newsletter86\\_200802.pdf](http://www.aspo-ireland.org/contentFiles/newsletterPDFs/newsletter86_200802.pdf)

ESTIMATED PRODUCTION TO 2100									End 2007		
Amount			Gb	Annual Rate - Regular Oil					Gb	Peak	
Regular Oil				Mb/d	2007	2010	2015	2020	2030	Total	Date
Past	Future	Total									
Known Fields	New		US-48	3.7	3.1	2.4	1.8	1.0	200	1970	
1008	724	143	1875	Europe	4.3	3.5	2.5	1.7	0.9	76	2000
	867		Russia	9.7	9.7	7.8	6.2	3.9	230	1987	
<b>All Liquids</b>			ME Gulf	19	19	20	20	17	693	2015	
1155	1345	2500	Other	28	27	22	19	13	701	2005	
			<b>World</b>	<b>65</b>	<b>62</b>	<b>55</b>	<b>48</b>	<b>36</b>	<b>1900</b>	<b>2005</b>	
<b>2006 Base Scenario</b>			<b>Annual Rate - Other</b>								
M.East producing at capacity (anomalous reporting corrected)			Heavy etc.	6.5	11	5	5	6	212	2030	
Regular Oil excludes Heavy Oils (inc. tarsands, oilshales); Polar & Deepwater Oil; & gasplant NGL			Deepwater	6.5	12	11	6	1	68	2011	
			Polar	0.9	1	1	2	4	52	2030	
			Gas Liquid	7.7	8	9	9	10	261	2035	
			<i>Rounding</i>				-1	3	6		
Revised	04/01/2008		<b>ALL</b>	<b>87</b>	<b>94</b>	<b>80</b>	<b>70</b>	<b>60</b>	<b>2500</b>	<b>2010</b>	

[www.davidstrahan.com/blog/?p=57](http://www.davidstrahan.com/blog/?p=57)

PRIVATE INDUSTRY CONFERENCE FINDS MUCH LESS OIL

Posted on Friday, September 28th, 2007

(Podcast) A secretive gathering some of the world's biggest oil companies has concluded the industry will discover far less oil than officially forecast, according to an executive who attended the event, meaning global oil production may peak much sooner than many expect.

The Hedberg Research Conference on Understanding World Oil Resources was held by the American Association of Petroleum Geologists in Colorado Springs last November to try to reconcile widely divergent estimates of likely future reserves additions. In an interview with Lastoilshock.com, oil executive Ray Leonard said the majority view was that future oil discovery would amount to some 250 billion barrels, rather than the 650 billion barrels suggested by the United States Geological Survey.

[www.energybulletin.net/25544.html](http://www.energybulletin.net/25544.html)

Published on 1 Feb 2007 by Bloomberg. Archived on 1 Feb 2007.

Simmons says global oil supply has peaked  
by Rhonda Schaffler

Matthew Simmons, chairman of Simmons & Co. International in Houston, talked yesterday with Bloomberg's Rhonda Schaffler about the need to address energy use, his view that global supply has peaked and the likelihood oil prices could reach as much as \$300 a barrel. (Source: Bloomberg)

[Transcription of the first few minutes of the interview]

Q: Tell me how you draw your conclusion that at this point we've hit Peak Oil.

A: If you look at the numbers and you follow what's going on starting with Mexico's giant Cantarell field which is now in a very serious state of decline and then you look at the North Sea and you see just the UK and Norway, it's pretty obvious to me that those three areas alone could actually decline by between 800,000 and 1 million barrels a day in 2007.

That pretty well wipes out almost all the production gains coming onstream and in implicit in

that it assumes that everyone else is flat.

So I think basically too many of our oil fields are too old. Too many now are in decline. The Middle East is basically out of capacity. they're some projects that are being worked upon, but most don't hit the market until 2008, 2009 and we're running out of time.

... I am firmly of the belief that over the course of the next year or two, this issue of peak oil will replace global warming as an issue that we're all worrying, debating and talking about.

#### FORMER PRESIDENT BUSH ENERGY ADVISER SAYS OIL IS RUNNING OUT

Robin Pagnamenta, Energy and Environment Editor

From The Times

June 30, 2008

The era of globalisation is over and rocketing energy prices mean the world is poised for the re-emergence of regional economies based on locally produced goods and services, according to a former energy adviser to President Bush and the pioneer of the “peak oil” theory.

Matt Simmons, chief executive of Simmons & Company, a Houston energy consultancy, said that global oil production had peaked in 2005 and was set for a steep decline from present levels of about 85 million barrels per day. **“By 2015, I think we would be lucky to be producing 60 million barrels and we should worry about producing only 40 million,” he told The Times.**

His controversial views, rejected by many mainstream experts, suggest that some of the world's biggest oilfields, particularly in Kuwait and those of Saudi Arabia, the world's leading producer, are in decline. “It's just the law of numbers,” he said. “A lot of these oilfields are 40 years old. Once they roll over, they roll over very fast.”

Mr Simmons asserted that this, coupled with soaring global energy demand, meant that world oil prices were likely to continue rising. He said that even at present record highs of more than \$140 a barrel, oil remained relatively inexpensive, especially in the US, the world's biggest market. “We are just spoiled rotten in the US,” he said. “It's still cheap.”

Rising prices will force a tectonic shift in the structure of the global economy by destroying the rationale for shipping many goods, such as food, over long distances, he said. “This is already happening. In the US, our local farms, ranches and dairies are booming. They are having a huge comeback.”

Mr Simmons set out a radical vision of the future, envisaging a society in which food and many other essentials are sourced and consumed locally and increasing numbers of people work from home. He claimed that the alternative was increasing political instability and conflict over the planet's diminishing resources. “We are living in an unsustainable society,” he said. “If we don't change we are just going to start fighting one another...So let's just start assuming the worst and plan for it.”

However, only this month, BP disclosed figures which indicated that the world had 1.24 trillion proven barrels of oil left in the ground - more than 40 years' worth at current rates of production. BP said that known global reserves had actually increased by 168.5 billion barrels, or 14 per cent, over the past decade. Tony Hayward, the chief executive of BP, said: “The good news is the world is not running out of oil.”

BP blamed a lack of investment and access to reserves, rather than geology, for why global oil production was sputtering.

Mr Simmons claimed that many countries had overstated their reserves for political purposes and that so-called flow rates were a better indicator of recoverable volumes. He said that the quality of oil produced by Saudi Arabia and other big exporters was declining.

## Peak Oil causing Peak Traffic

The 2005 Final Environmental Impact Statement for the Inter County Connector highway (I-370 or Maryland Route 200) in Maryland, part of the long planned Outer Beltway around Washington, D.C., had this response to a comment that referenced Peak Oil as a reason not to build the road:

*It is speculative to assume that increases in gasoline prices will "reduce congestion." Evidence indicates that very substantial price increases might be needed in order to substantially change transportation choices and decisions. Price increases could cause a variety of responses which might not affect highway usage; e.g. production and acquisition of more fuel-efficient vehicles. The travel forecasts were made assuming a cost per mile for operating an automobile. Historically as the price of gasoline has increased the miles traveled per gallon of gas have also increased. In fact, gas costs less per mile traveled today than it did prior to the first oil embargo in 1974. Petroleum scarcity as a result of consumption in China is speculative.*

- Final Environmental Impact Statement, Inter County Connector

This EIS was correct to state that planning for rising gas prices is speculative, but planning as if prices will remain constant for the next two decades is even more speculative.

It is not "speculation" to predict that higher gas prices will prevent traffic increases. Here is a small example of how this works, which shows that the price increases likely from Peak Oil will lower traffic demand considerably in the design year of 2030.

[www.cnn.com/2006/AUTOS/11/30/gas\\_prices.reut/index.html](http://www.cnn.com/2006/AUTOS/11/30/gas_prices.reut/index.html)

Americans drive less for first time in 25 years

Higher gas prices cut not only sales of SUVs, but also time spent on the road: study.

POSTED: 3:47 p.m. EST, November 30, 2006

HOUSTON (Reuters) -- High gasoline prices not only slowed fuel demand growth and cut sales of gas-guzzling vehicles in 2005, they also prompted Americans to drive less for the first time in 25 years, a consulting group said in a report Thursday.

The drop in driving was small - the average American drove 13,657 miles (21,978.8 km) per year in 2005, down from 13,711 miles in 2004

More riders crowd buses

The rising cost of driving sends record numbers to LTD, where human traffic jams the aisles

BY JEFF WRIGHT

The Register-Guard

Published: Thursday, April 6, 2006

TRAFFIC AT THE YORK TOLLS on the Maine Turnpike - a standard measure of tourism in the state - was down in June and even more in July compared with the same time last year. . . Traffic passing through the York tolls had increased every year until five years ago, when it became stable. This is the first time it has dropped significantly; the decrease was 5.3 percent when comparing June 2004 and June 2005, and 5.8 percent when comparing July numbers. . . The national average price for regular unleaded gas was \$2.41 a gallon, compared with \$1.86 a year ago

<http://pressherald.maintoday.com/news/state/050813gasprices.shtml>

[www.mainturnpike.com/jpgraph/total\\_by\\_month.html](http://www.mainturnpike.com/jpgraph/total_by_month.html)

[www.mainturnpike.com/jpgraph/yearly\\_totals.html](http://www.mainturnpike.com/jpgraph/yearly_totals.html)

High gasoline prices filling bus, train seats

Tue Apr 25, 2006

By Bernie Woodall, Reuters

Some mass transit advocates hesitate to say the price spike has forced drivers onto public transportation, including Amtrak spokesman Cliff Black.

But in some cities where the car is undisputed king of transportation such as Houston and Los Angeles, public transportation ridership is up.

In Houston, home to many oil refineries, ridership was up 10.2 percent in the most recent fiscal year, said Houston's Metropolitan Transit Authority, which has a large bus fleet.

In Los Angeles, Metro Rail ridership rose 11.4 percent and the number of bus passengers increased 7 percent in the first quarter of 2006. About 1.4 million ride Los Angeles County buses and trains daily.

It's difficult to say how many are on board because of gasoline prices, said Dave Sotero of the Los Angeles County Metropolitan Transportation Authority.

"When gas prices go up, we do see spikes in ridership," said Sotero. "We're hopeful people who haven't used public transit, they will carry on riding even if gasoline prices drop," said Sotero.

Last week, the Washington Metropolitan Area Transit Authority in the nation's capital had the two highest ridership days in the Metrorail's 30-year history that were not linked to a special event. The highest day was April 20, with 780,820 riders, up 6.2 percent from a year ago.

But WMATA spokesman Steven Taubenkibel said it's hard to peg that on gasoline prices -- nice weather last week may have had more to do with it, he said.

These statistics do not suggest a major shift (yet) due to increasing gas prices, but they hint at much larger changes to come on the petroleum downslope.

## Climate greenwash: a quiz

The states of Oregon and Washington are planning to spend about \$4 billion for a new, widened I-5 bridge across the Columbia River, which would also extend the Portland light rail a couple more stops (across the river into downtown Vancouver). What did Oregon Transportation Commissioner Gail Achterman say about the environmental impacts of this expansion?

- "The Columbia River Crossing project is a major forward step in our effort to reduce the carbon footprint of our transportation system"**
- "We are canceling the highway component of this project and diverting the funds toward public transit in metropolitan Portland and high speed passenger rail for Cascadia" (Eugene to Vancouver BC).
- "The State of Oregon recognizes the seriousness of the Peak Oil and Climate Change crises, and we are going to implement the Oregon Transportation Plan's policy guidelines to prioritize fixing existing roads before building new capacity."
- "The I-5 widening is part of the national NAFTA Superhighway proposals, so the state is opposing this proposal to encourage support for regional business instead of outsourcing our production to foreign sweatshops."

Historic and Forecast Gas Emissions in Oregon  
Showing Proposed Goals

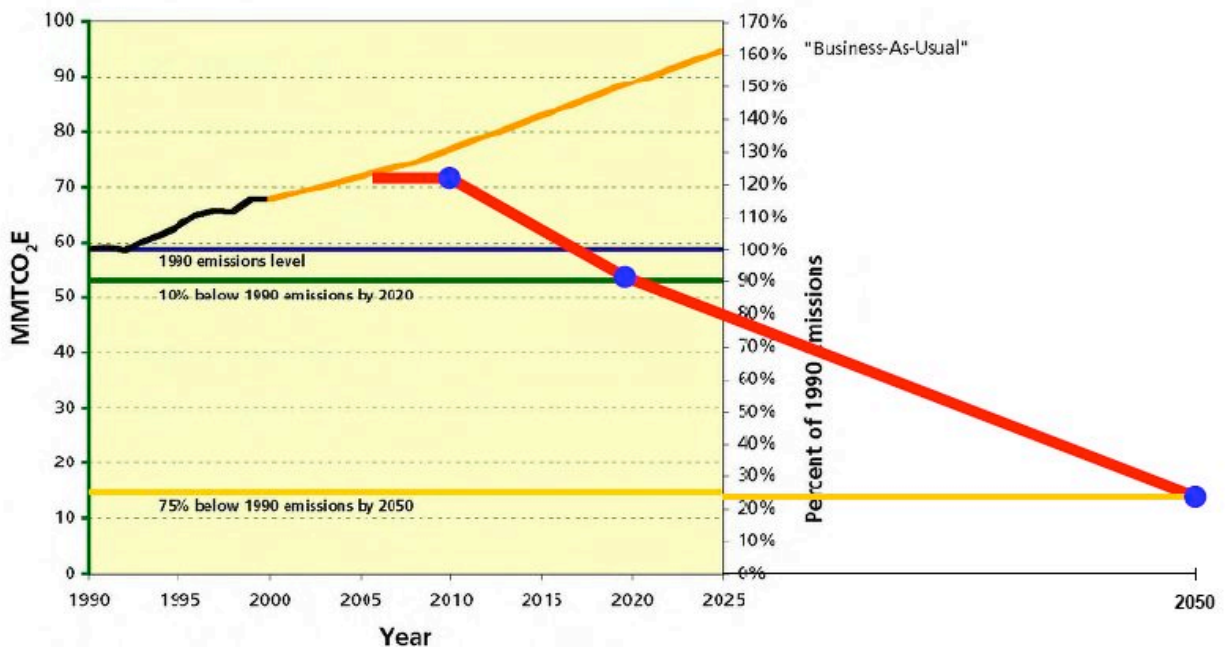


chart from ODOT of carbon pollution reduction targets through 2050. The black line includes the increases during the Clinton/Gore administration. Yellow upward line represents plans for continued "growth." Note that the shape and rate of the downslope almost mirrors the projected downslope of the Peak Oil curve.



In our new Orwellian age of greenwash, war is peace, ignorance is strength, and widening the Interstate highways will clean up the atmosphere. Building multibillion dollar bridges with huge amounts of steel and concrete is very energy intensive and generates a large amount of toxic pollution to manufacture the raw materials. Even building the light rail (and not the road bridge) would increase carbon dioxide levels in the atmosphere. “Carbon credits” and “offsets” are linguistic tricks, since building a train or installing solar panels and wind turbines cannot sequester existing CO2 back into the crust of the Earth. Proposals to reduce the rate of increase of carbon pollution are not the same thing as removing soot from the atmosphere. The natural biological capabilities of carbon sequestration are already busy absorbing normal CO2 generation from animals and other natural sources, so they are unable to absorb CO2 and methane created by burning fossil fuels.

Instead, it appears likely that oil rationing (whether from price increases or official policy) and depletion is going to reduce the growth of carbon emissions. Calls to reduce carbon levels by various percentages by the year 2050 parallel almost exactly the expected reduction in oil production / extraction. Natural gas is likely to decline faster than oil -- at least in North America. Even coal has been exaggerated, with global coal extraction set to peak around 2025 -- although coal mining requires lots of oil (for transport) and a stable electric grid.

The SDEIS needs to look at the cumulative impact of the land use patterns that would be induced from the project.

## **Saving Oil in a Hurry: carpooling is part of the answer**

In 2005, the International Energy Agency held a forum to discuss “Saving Oil in a Hurry.” While in the long run fossil fuel supplies are going to gradually decline, there are numerous scenarios where sudden sharp downward levels of availability could happen -- conflict in oil exporting countries, severe hurricanes in the Gulf of Mexico offshore drilling areas, desire by oil exporters to reduce exports since oil will be more valuable in the future, a US / Israeli attack on Iran followed by Iranian disruption of oil flows through the Persian / Arabian Gulf. There are also plausible possibilities that some oil fields could see much more rapid decline than some planners are hoping for, especially those oil fields that are being pumped out with large volumes of water (a technique that works for a while but risks collapse of the oil field).

The Saving Oil in a Hurry report suggested that in the United States and Canada, carpooling would have greater energy reductions in the US than free public transit, although no one approach is sufficient. In Western Europe, free transit would have the single biggest reduction in oil consumption. All approaches will be needed, but the opportunity of using all of the seats in the existing traffic flow shows the potential for quick reductions of energy use -- an opportunity that is a social obstacle, not a technological problem.

Regardless of which geologists are ultimately proven correct about oil supplies, we need to prepare to live with much less energy consumption.

<http://www.iea.org/textbase/work/workshopdetail.asp?id=210>

Workshop: Managing oil demand in transport.

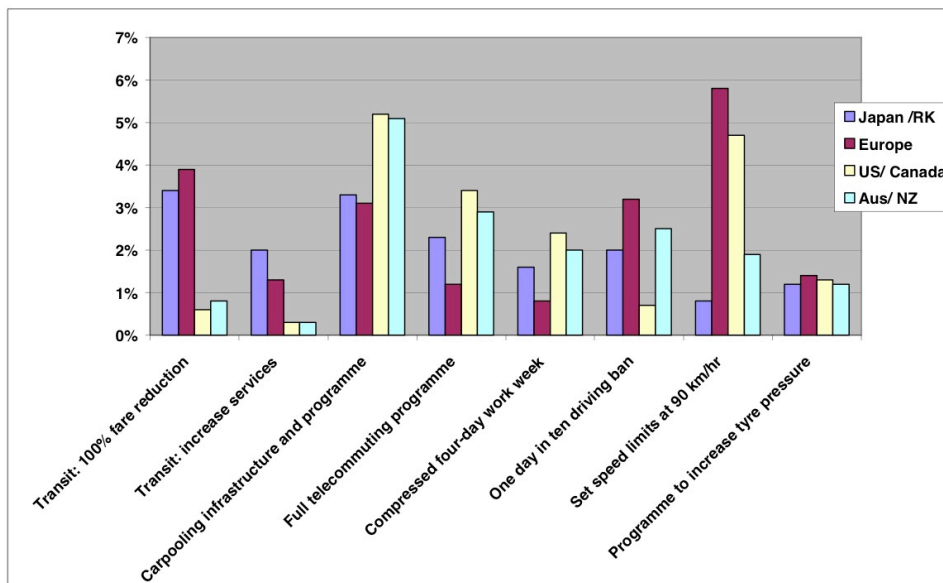
International Energy Agency

European Conference of Ministers of Transport

WORKSHOP: MANAGING OIL DEMAND IN TRANSPORT

Paris, 7-8 March, 2005

# Percent reduction in total fuel use by IEA region, selected measures



Imperial College  
London

## NAFTA Superhighway - ISTE, TEA-21, SAFETEA-LU

The NAFTA Superhighways are not ONE highway plan, they are a large network of new highways and expanded (existing) highways, a series of north-south interstate highways across the U.S. These new and expanded roads would stretch from Canada through the U.S. to Mexico (excepting certain East Coast routes that would merely connect to ports on the Atlantic or Gulf coasts).

The initial proposal for NAFTA Superhighways was in the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA) Federal transportation law, but has now expanded in scope to encompass several "superhighways on steroids." Some of these oversized roads would have many car lanes, truck only lanes, parallel freight train lines, passenger train lines and utility corridors (electricity, oil, natural gas, water, etc).

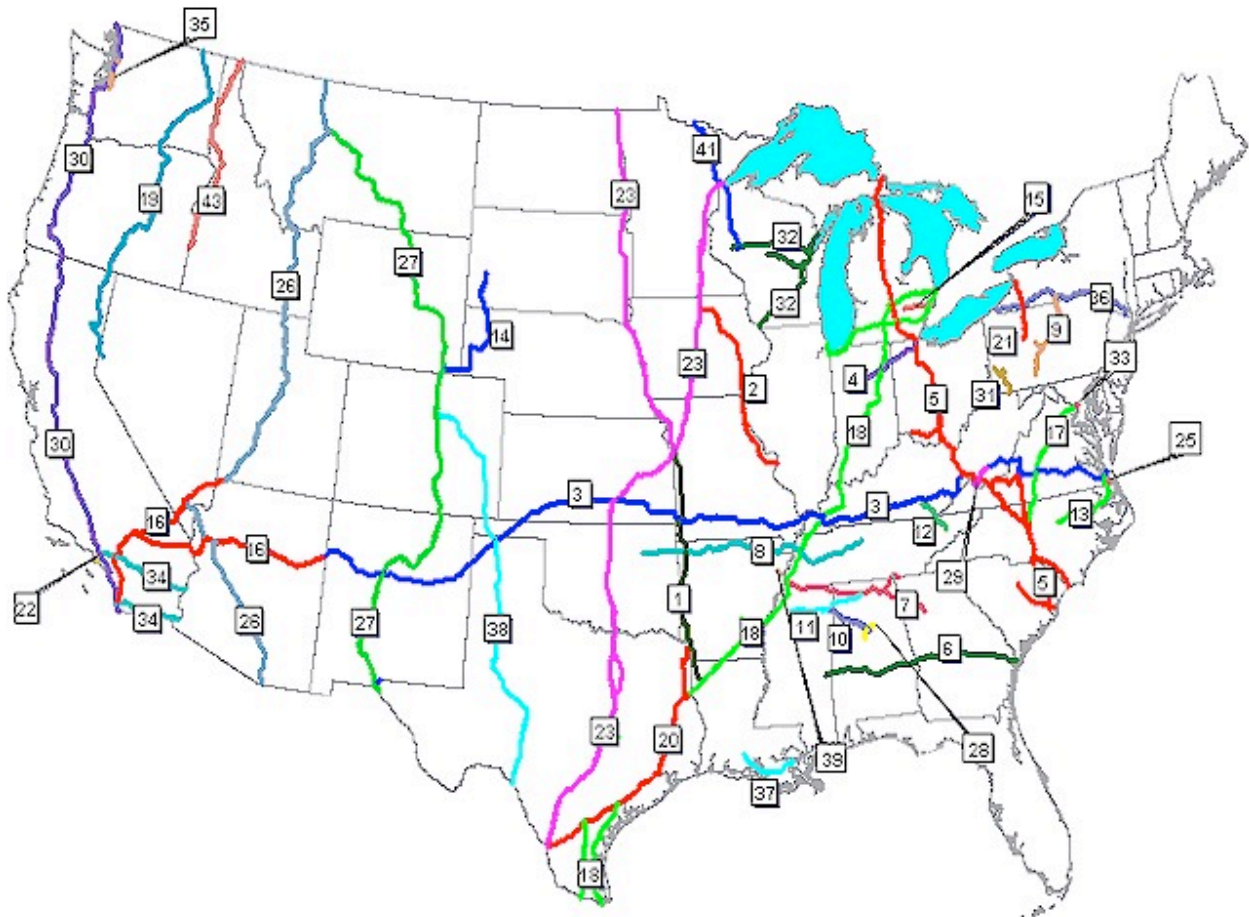
ISTEA specified the first iteration of the "NAFTA Superhighway" -- to extend I-69 from Indianapolis (its current southern terminus) all the way to Mexico. Highwaymen from several states who each wanted their local and regional boondoggles got together and petitioned Congress to create this full route as a national priority "corridor." The new I-69 is planned to go through southern Indiana, Kentucky, Tennessee, Mississippi, Arkansas, Louisiana and Texas. The southern Indiana section is probably closest to being built.

The 1998 "TEA-21" and 2005 "SAFETEA-LU" laws expanded from the few dozen new "corridors" in the 1991 ISTEA law and the 2005 law has a total of 80 corridors. Some of these

corridors involve upgrading existing highways, some involve construction on "new alignment," a couple of the corridor designations specify numerous road projects in a region.

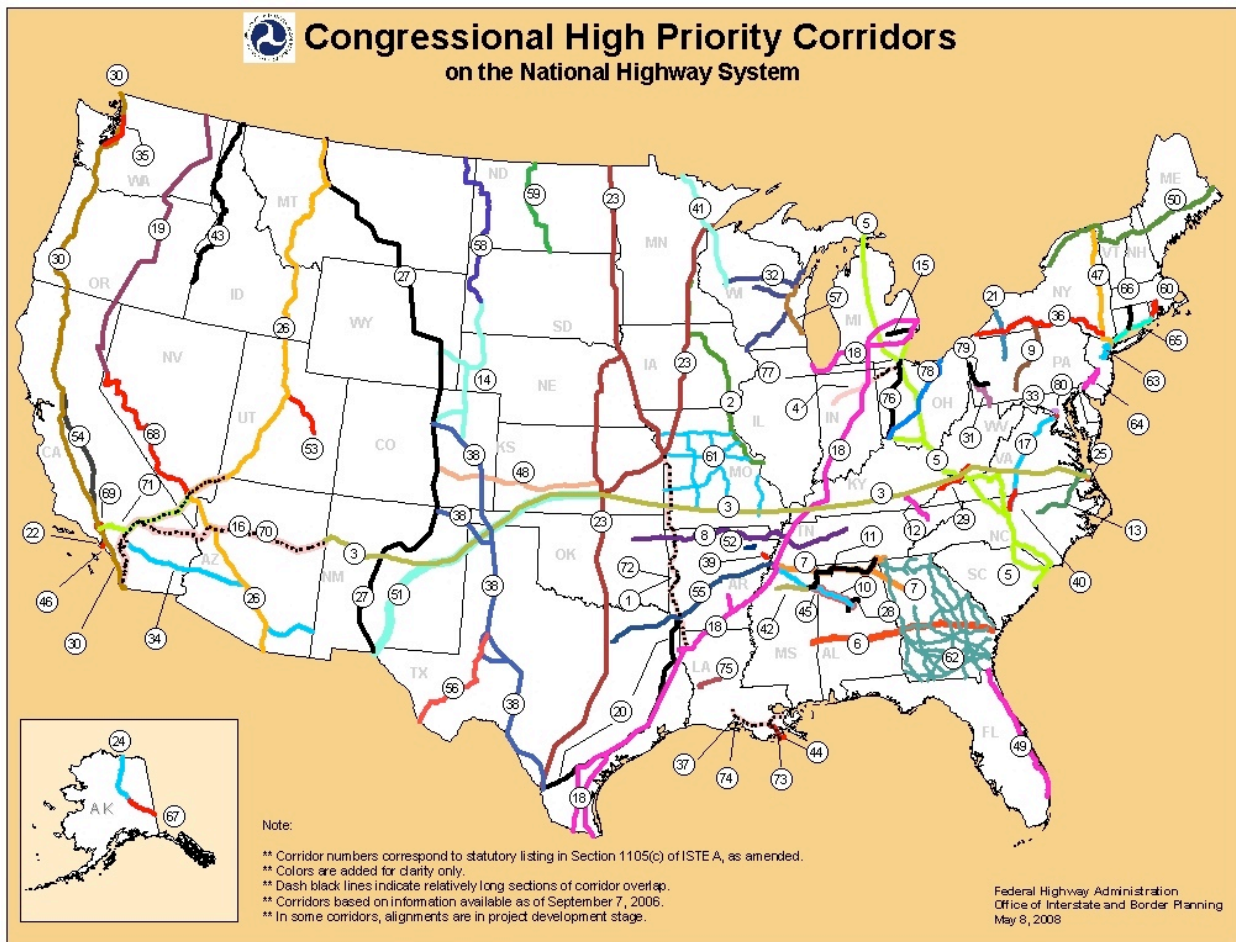
The planning for NAFTA Superhighways is predicated on continued cheap and abundant gasoline -- an assumption about to receive sobering reality from the underlying geological limits of petroleum production. NAFTA Superhighways are essentially a key component of further "globalization" of commodity production intended to homogenize local communities and further centralize control over manufacturing.

None of the national environmental groups who claim to be concerned about global warming, energy efficiency and public transportation have campaigned against passage of these NAFTA superhighway laws. Some of these groups even supported their passage since a minority of the bill included public transit funding and a few pennies (relatively speaking) for bicycle and pedestrian projects.



1991 ISTEA "priority corridors" - upgrading I-5 from Canada to Mexico is included

This is the bill that some environmental groups considered a great victory for the environment since there were some small improvements for transportation planning requirements (all State DOTs now need a pedestrian / bicycle coordinator, there are new requirements for metropolitan planning for new roads, etc.). However, the bulk of this transportation law was to fund more highways.



from the 2005 “SAFETEA-LU” transportation law

the High Priority Corridors map was copied from the Federal Highway Administration website at [www.fhwa.dot.gov/planning/nhs/hipricorridors/index.html](http://www.fhwa.dot.gov/planning/nhs/hipricorridors/index.html)

## Tolling without tollbooths: the J. Edgar Hoover Memorial Parkway

I oppose ODOT’s plans to create a “mileage tax” surveillance system to track everyone’s tolls. I would support instead paying for transportation projects through the gasoline tax - those who drive more, those who drive gas guzzlers, those who drive less efficiently or above the speed limits would pay more than those who drive less and more gently. That would make more of a dent on the transportation congestion than putting up cameras to record everyone’s license plate so that the voyeurs who want to know where everyone is all of the time can spy on the entire population.

The tolling system would charge someone driving a hummer the same as someone driving a hybrid. Gasoline taxes would shift the burden to those driving less efficiently, whether driving a fuel inefficient vehicle, speeding at 70 mph (versus 55) or otherwise driving aggressively in ways that increase fuel consumption.

The reality of Peak Oil, on the other hand, can alter the traffic planning analyses used to justify these sorts of boondoggles, since in 2030 we will be lucky if we will be allowed to buy oil for personal consumption. Whatever the price and availability in 2030 turns out to be, it clearly will be considerable more expensive and less available two decades in the future. The bypass needs a Supplemental Draft EIS to redo their analysis to reflect the reality of Peak Oil and Peak Traffic -- phenomena that are not going to be substantially shifted even if we had a crash program to build hybrid cars and banned SUVs (since we've waited too long to start the transition).

**It's worth remembering Martin Luther King's objections to highways, made the week before the federal government stopped his campaigning for racial and economic justice:**

**“These forty million [poor] people are invisible because America is so affluent, so rich; because our expressways carry us away from the ghetto, we don't see the poor.”**

**-- Martin Luther King, "Remaining Awake Through a Great Revolution," March 31, 1968**

## **Reviving the Rails: a best case Peak Oil scenario**

"In the United States, we have a railroad system that the Bulgarians would be ashamed of. We desperately are going to need railroad transport for moving people around, for moving goods around – we don't have that. What we do have is a trucking system that is going to become increasingly dysfunctional, especially as the expense mounts of maintaining the tremendous interstate highway system. It costs so much money every year to maintain what the engineers call a high level of service – which means that the trucks that are delivering things from the central valley of California to Toronto don't break their axles while they're bringing those Caesar salads to Toronto. Once you have a certain number of trucks that are breaking their axles in that 3,000 mile journey, that's the end of transcontinental trucking – which also implies that this is the end of certain economic relationships that we have gotten used to."

-- author James Howard Kunstler, from an interview in the film "The End of Suburbia: Oil Depletion and the End of the American Dream"

In the 1960s, the success of freeway fighters in stopping the Boston Inner Belt spurred Congress to change transportation laws to allow money programmed for Interstate highways to be used for public transit. Several rail systems were created from unused freeway funds, most notably the initial construction phase of the Washington, D.C. Metro.

If the United States ever makes shifts to have an ecological, socially just policy to cope with Peak Oil, it would need to shift money from the NAFTA superhighway program to a serious revival of inter-city rail to efficiently move people and goods with less energy consumption.

A best case scenario for mitigating Peak Oil could include

- bullet train service between cities (with solar panels lining the tracks to provide some of the power),



- light rail and better bus service on major roads,
- major investments in renewable energy and hyper-conservation,
- land use shifts to reduce commuting distances,
- widespread suburban agriculture to convert lawns into food production (which would reduce truck deliveries),
- other steps to reduce our demand for oil, coal, natural gas, uranium, concrete, and mineral ores.

If we continue on the current road of overshoot, the likely consequence will be a “national Katrina” disaster, where a small group would still have access to fuels, capital, and quality food while a much larger underclass would be left to scramble for survival. But that dismal potential shares one outcome with the “positive scenario” -- both the cooperative, conservation future and the collapse scenario would greatly reduce need for more highways. Whether we cope with Peak Oil and climate change or continue to ignore the problems until they become catastrophic and un-mitigable, there is no need to continue to expand highway network.

Relocalizing production and building renewable energy systems is a bigger priority for using the remaining oil than more freeways for Wal-Mart delivery trucks.

Future generations will regret that essential farmland was paved over - not that one more dumb highway was not built.

Politicians who have nothing practical for the public to mitigate the consequences of Peak Oil risk being thrown out of office once the price of gas goes up and stays up. Who will get the blame for ignoring the issue?

The most important question regarding planning for 2030 is what type of economy we will have after the cheap abundant oil is replaced by expensive, scarce oil. Will we use the remaining oil to relocalize production and build lots of renewable energy equipment or will this oil be used to build more freeways and fuel a futile World War to control the remaining oil fields? The answers to these questions determine the future of the human race.



This map shows a proposal from US Department of Transportation for high speed rail in the United States. Note that the Cascadia high speed train service has languished in obscurity, unfunded, ignored by politicians proclaiming themselves to be green and interested in “sustain a bull” transportation. While Washington State is making some modest upgrades to the train line -- which will provide some slightly faster Amtrak service -- the State of Oregon is doing its best to ignore problems of Willamette Valley train service.

The ODOT report “I-5 Rail Capacity Study” (February 2003), archived at [www.oregon.gov/ODOT/RAIL/docs/railcapstudy.pdf](http://www.oregon.gov/ODOT/RAIL/docs/railcapstudy.pdf) estimated it would cost about \$170 million to make substantial fixes to the freight rail network in the Portland area to permit increased passenger train service and unclog freight train congestion (partially caused by the import of cheap crap from China into western ports in Portland, Seattle, Tacoma and other locations).

The SDEIS needs to consider increased Amtrak service from Vancouver, Washington to Union Station in downtown Portland as part of the transportation mix.



Amtrak: old and new (80 and 120 mph theoretical speeds if the tracks were fixed). The Amtrak Cascades could connect cities much quicker if the tracks were upgraded to accommodate the speed it is capable of.

A side issue: solar photovoltaic panels should be installed along the tracks of the I-205 and Milwaukee light rail routes, along I-5, and even along the freight rail routes where possible. This is done in a growing number of European communities, since the right of way is already cleared (and usually in public ownership). Perhaps solar panels could be used to create a roof over bike paths to keep bicyclists and pedestrians dry during the rainy season.





ACELA: Amtrak's high speed service from Washington, D.C. to Boston (150 mph). It is not quite the same quality of service as found in Japan, France, Germany, the Eurotunnel, Taiwan, Korea and other places with dedicated high speed routes, but it is the best train route in North America. How many high speed routes could be built for the cost of a new Trident submarine, more Stealth bombers or other Weapons of Mass Destruction that are Made in the USA? Unfortunately, even if there was a national shift in priorities to build super trains, the locomotives would have to be imported since there is almost no domestic train production capacity after decades of deliberate neglect. (The Amtrak Cascades train was built in Spain, not Puget Sound or the Willamette Valley.)

## Rebuttal of DEIS energy sections from Columbia River Crossing - also relevant for Newberg Dundee DEIS and future SDEIS

### 3.12 Energy

Policies at the federal, state and local levels support energy conservation for all sectors, including transportation. Transportation energy efficiency is largely regulated through requirements on vehicle manufacturers rather than transportation infrastructure. There are no established standards to determine when a transportation project has an energy “impact.” This DEIS compares the relative energy demands of the different CRC alternatives and discusses options that could reduce energy consumption during project construction and operations. This information is based on the CRC Energy Technical Report.

#### 3.12.1 Existing Conditions

This section gives an overview of national and state energy supply and demand, with a focus on transportation demand and on petroleum—the primary energy source for transportation.

##### National Energy Demand

At the national level, industrial uses had the highest share of energy demand in 2005. **However, the transportation sector’s energy demand is expected to grow by 1.4 percent annually—to a 29.9 percent share by 2030—and will exceed the industrial sector’s demand. Of the total energy projected to be used by transportation in 2030, 97.4 percent is expected to come from liquid fuels and other petroleum products.** Even

note: in other words, transportation is going to remain very dependent on liquid fuels. Petroleum has the highest energy density of any known liquid fuels and has the greatest Energy Return on Energy Invested (EROEI) of any known liquid fuels.

with improvements in fuel consumption rates and increasing use of alternative fuel sources, **the high passenger travel demand and increasing use of trucks for freight is expected to result in a substantial increase in energy demand.** The transportation sector (including aviation, marine,

note: this alleged increase in demand is unlikely to be met with a parallel increase in supply. Just because there is a demand does not mean that oil fields can be extracted faster.

freight rail and roads) accounts for about 68 percent of our nation’s petroleum consumption.

##### Washington and Oregon Energy Demand

The total demand for all energy sources in Washington State has grown steadily, although the per capita consumption rate has declined several times since the early 1970s. The demand for energy from coal and natural gas in Oregon and Washington is substantially lower than the

national average, but is offset by the demand for hydro-electric power. Washington is the leading hydroelectric power producer in the nation. However, as of 2004, energy derived from petroleum products accounted for the largest single share (42.0 percent) of energy consumed in Washington, slightly higher than the 2005 national demand of 40.5 percent. **In 2000, approximately 47 percent of Oregon's energy consumption came from petroleum.** Since then, petroleum's share of

note: this shows that Oregon's transportation system is totally dependent on petroleum (since the non petroleum energy supplies generally run the electric power grid, not transportation

total demand has decreased, but still accounts for the largest share of energy consumption at 35.7 percent, notably lower than the national average. As illustrated in Exhibit 3.12-1, the transportation sectors in Washington and Oregon (including aviation, marine, freight rail and roads) account for about 71 percent and 82 percent, respectively, of each state's total petroleum consumption. In Washington, state-wide petroleum demand in the industrial sector is nearly four times that of Oregon, increasing Washington's non-transportation use of petroleum.

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#### Peak Oil and Global Supply and Demand

Peak oil refers to the time frame in which the maximum global petroleum production rate is reached, after which the rate of production enters a terminal decline. Peak oil and its relevance to the CRC project is discussed in the Cumulative Impacts section.

The trend toward more fuel-efficient vehicles is expected to continue in the future because of recent government requirements for higher fuel efficiency standards and rising petroleum prices. Promoting alternative fuel sources for transportation, such as ethanol, biodiesel, compressed natural gas, liquefied petroleum gas, and electricity has also been increasing. Nonetheless, petroleum demand in Washington, Oregon and the project area is projected to increase.

#### **Washington and Oregon Petroleum Supply**

Because gasoline and diesel are the primary energy sources for the transportation sector, the analysis of energy supply focuses on petroleum-based fuel sources. **Approximately 90 percent of Washington's current supply of crude oil comes from the Alaska North Slope.** Five refineries in the Puget Sound area distribute refined

petroleum products to Washington and adjacent states. **Oregon imports 100 percent of its petroleum, of which approximately 90 percent comes from Washington refineries. Both states' future supply of petroleum is largely dependent on domestic production and reserves. Oil production from the North Slope peaked in 1988 and is projected to continue declining.**

**note: In other words, Oregon and Washington are totally dependent on outside sources for oil, and the main source of that oil has been in decline for two decades -- down by two-thirds since the peak.**

### **Energy Use in the CRC Project Area**

The estimated existing daily energy use for the regional transit system (including the regional MAX light rail system and all of C-TRAN's and TriMet's buses and other transit vehicles) is approximately  $2.8 \times 10^9$  Btus. For cars and trucks crossing the river on I-5 and I-205, the estimated daily energy use is about  $1.3 \times 10^9$  Btus. The estimate for existing and future highway energy use is based only on the crossing portion of highway trips. It does not estimate regional highway energy demand or even project wide demand. The reason for setting these boundaries for the highway energy estimates is twofold. First, the impact on highway energy demand outside the corridor would be minimal. Second, **highway speeds and congestion have a strong influence on fuel efficiency and thus energy demand. Traffic analysis completed for the CRC project provides reliable speed and congestion estimates for the river crossing, but not elsewhere in the region.** For these two reasons,

rebuttal: Neither Oregon nor Washington is planning to reduce highway speed limits to the Nixon era 55 mph to reduce energy consumption (although when the oil crunch becomes more obvious this decision may become inevitable). While idling cars do waste oil, cars traveling 55 mph also use lots of oil, and the impacts of "induced traffic" and induced sprawl development from new highway construction / expansion need to be factored in to these analyses. It is incorrect to suggest that a bigger bridge will reduce energy consumption - the excessive construction would be very energy intensive and the plans for extra traffic versus a Peak Traffic Alternative would consume vast oceans of fuel.

highway-related energy demand is based on the estimated traffic volumes, vehicle types and travel speeds for the crossings themselves. This captures the most meaningful effects and provides a reliable comparison among alternatives, even though it does not capture all of the potential highway energy savings. The analysis of transit-related energy demand looks more broadly, primarily because this allows the analysis to capture the effect that the

CRC alternatives have on transit operations outside the immediate project area.

### **3.12.2 Long-Term Effects of Project Alternatives**

**By 2030, energy consumption by vehicles on regional roadways, including I-5 and I-205, will increase substantially over existing conditions. This will occur largely because population growth will increase the number of cars, trucks, and buses on the road. At the same time, average vehicle fuel efficiency is expected to improve as new, more fuel efficient and alternative fuel vehicles replace old ones.**

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rebuttal: It is not physically possible on the downslope of oil extraction for future consumption to be greater than the peak of production. While fuel efficiency may increase, the overall availability of energy will decline faster than federal mandates to force higher mileage standards. Alternative fuels that are under consideration have substantially lower “energy return on energy invested,” so they will not be able to replace existing use of oil.

Exhibit 3.12-2 shows predicted fuel consumption in the year 2030. Highway energy use is projected to decrease for all of the build alternatives compared to the No-Build Alternative. Highway-related energy savings would likely be greater than shown as this table indicates only the energy reductions associated with the actual river crossing. The lower energy demand for the highway crossing is due to three primary factors:

- **Increased I-5 bridge capacity decreases the duration of congestion and increases average speeds. This improves fuel efficiency. Compared to stop and go traffic, fuel efficiency improves as average speeds increase, until the speeds reach free flow conditions.**

rebuttal: Peak Traffic means that before 2030, substantial reductions in traffic flow are a certainty, thus removing the alleged “need” for highway widening across the river. Instead, extra effort should be made for expanded light rail, carpooling, world-class Amtrak service, better bus service, and other initiatives to help citizens cope with the end of cheap oil.

- CRC provides high-capacity transit that is expected to divert a portion of personal vehicular travel demand to transit, which uses less energy per passenger.
- **Tolling the I-5 crossing is expected to deter some trips across the river, which reduces energy demand.**

rebuttal: a more equitable means to raise the funds would be to tax gasoline at the pump, preferably at the same level on each side of the state border. Refunds could be pro-rated to lower income people to prevent an apartheid transportation system based on class. Forcing

poorer people onto the new light rail train while richer people continue to drive is a form of environmental injustice.

Total energy use would rise with Alternatives 4 and 5 primarily due to the increased level of transit operations. Total energy use would decline with Alternatives 2 and 3 compared to the No-Build Alternative.

#### **Alternative 1: No-Build**

Exhibit 3.12-2

#### **Future 2030 Energy Consumption (Million Btu)**

##### **Alternative 1**

##### **No Build**

I-5 crossing 793.6

I-205 crossing 831.7

**Highway Crossing Subtotal 1625.3**

Conventional bus 3,238.1

Biodiesel bus<sup>a</sup> 0

Light rail 520.8

**Transit Subtotal 3758.9**

**Total 5384.2**

Source: CRC Energy Technical Report.

a Both transit operators have commitments to biodiesel utilization, and have begun investing in biodiesel vehicles. But for the No-Build analysis, no assumptions were made about the percentage of the vehicle fleets that may one day run on biodiesel. There is similar support for diesel/electric hybrid vehicles, though no assumptions for such were made in this analysis

**The No-Build Alternative is projected to have higher energy consumption than Alternatives 2 or 3 (by about 3 percent), and lower than Alternatives 4 and 5 (by about 6 percent).**

rebuttal: it is physically impossible for any alternative proposed today for the year 2030 to have an increase in energy consumption since the energy to be consumed is non-existent. Peak Oil will force a reduction in overall consumption regardless of government plans in Environmental Impact Statements. A Supplemental Draft EIS is needed to accurately project energy supplies in the design year of 2030.

### **3.12.3 Long-term Effects of Project Components**

This section describes impacts of the components that comprise the project alternatives.

#### **Multimodal River Crossing and Highway Improvements**

#### **(Replacement Crossing with Alternatives 2 and 3; Supplemental Crossing with Alternatives 4 and 5)**

The highway improvements associated with the replacement crossing would reduce energy demand relative to the highway improvements associated with the supplemental crossing because the additional capacity would decrease the amount of time cars spend in stop and go traffic. This improves fuel efficiency.

#### **Transit Mode (BRT with Alternatives 2 and 4; LRT with Alternatives**



### 3 and 5)

Light rail would reduce energy demand relative to bus rapid transit, although the difference is minor. Both modes would reduce energy demand compared to providing no high-capacity transit system in the CRC corridor.

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The additional electrical energy consumed by daily operations of maintenance bases would be negligible compared to the energy consumed for transportation. Expanding either the bus maintenance base in east Vancouver or the light rail maintenance base in Gresham would not measurably affect long-term energy use.

#### **Transit Terminus and Alignment Options (with all Alternatives)**

The Lincoln terminus would use slightly less energy than the Kiggins Bowl terminus, because it is a more direct and shorter route to North Vancouver.

The transit component of full-length terminus options would consume more energy than the transit components of either of the minimum operable segment (MOS) terminus. The Clark College MOS would require approximately 1.4 percent less energy. The Mill Plain MOS, which represents the shortest high-capacity transit line length, would have the lowest energy use by approximately 2.4 percent compared to a full-length terminus. Construction energy demand would be lower for the minimum operable segments.

The transit alignment options would not affect the overall energy demand of the project, as summarized above for the alternatives.

#### **Transit Operations**

Increased transit operations (service frequency) would increase the transit operational energy demand compared to the Efficient operations option. While the Increased transit operations would result in fewer autos crossing the river, and thus some reduction in highway energy demand, that decrease is not proportional to the added energy demand from the substantial increase in transit service associated with the Increased versus Efficient transit operations.

#### **Tolling Scenarios**

Tolls on the I-5 crossing are included in all build alternatives. Other tolling scenarios were studied to analyze how tolling would affect demand on the roadway.

**Under tolled scenarios, the replacement crossing would result in 178,000 daily vehicle trips across the I-5 bridges and 213,000 vehicle trips across the I-205 bridges. If no toll were collected in 2030, the I-5 crossing's daily traffic levels would increase by 32,000 vehicles (18 percent). I-205's daily traffic would decrease by 13,000 vehicles (6 percent). Without tolling, an additional 19,000 (5 percent) cross-river vehicle trips would be made in 2030.**

rebuttal: It is impossible for traffic levels to increase when overall energy supplies will be substantially lower in 2030 than today in 2008. A Supplemental DEIS is needed to model a Peak Traffic Alternative.

Due to the supplemental bridge's assumed higher toll, less available highway capacity, and provision of an enhanced transit system, daily I-5 vehicle crossings would be 13,000 vehicles per day lower compared to the replacement bridge, while I-205's crossings would increase by 6,000 vehicles per day. Overall, there would be 7,000 fewer vehicle crossings of the Columbia River via I-5 and I-205.

The No Toll scenario would have the highest daily energy use. Compared to the No Toll scenario, the Standard Toll on I-5 scenario would consume approximately 1.9 percent less and the Standard Toll on COLUMBIA RIVER CROSSING

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#### Estimating Construction

#### Energy Use

The approach for estimating energy use during construction is based on a method developed by the California Department of Transportation. It estimates energy requirements for a variety of construction activities (building structures, electrical substations, site grading, etc.) by relating project costs to the amount of energy needed to manufacture, process, and install construction materials and structures.

Both I-5 and I-205 would require approximately 3.6 percent less operational energy.

#### **3.12.4 Temporary Effects**

The method used to estimate energy use from construction is based on applying a factor to construction cost estimates. This provides a straightforward albeit relatively simplistic approach for comparing the relative energy demand of alternatives.

Based on this estimating method, Alternative 3 (replacement crossing with light rail) would require the most energy to construct (estimated at about  $7.28 \times 10^{12}$  Btus), followed by Alternative 2 (3.2 percent lower), Alternative 5 (about 19.7 percent lower), and Alternative 4 (about 23.3 percent lower). Energy to construct Alternative 4, the lowest-cost full alternative, is estimated at about  $5.90 \times 10^{12}$  Btus. The two minimum operable segments are shorter and less expensive to build, and would thus require less construction energy.

For the components that make up the alternatives, light rail construction

would consume more energy than bus rapid transit; and, constructing the Kiggins Bowl terminus (A) would use more energy than the Lincoln terminus (B).

### 3.12.5 Potential Mitigation

#### Potential Mitigation for Temporary Effects

A variety of potential measures could reduce energy consumption from construction. As the project advances in design, and more detail is available on construction needs and activities, additional analysis will help identify specific measures and approaches for reducing energy consumption during construction. Potential measures include:

- Construction materials reuse and recycling.
- **Encouraging workers to carpool.**

The SDEIS should consider encouraging all workers to carpool, not merely those working on the construction of the CRC.

- Turning off equipment when not in use to reduce energy consumed during idling.
- Maintaining equipment in good working order to maximize fuel efficiency.
- As practical, routing truck traffic through areas where the number of stops and delay would be minimized, and using off-peak travel times to maximize fuel efficiency.
- As practical, scheduling construction activities during daytime hours or during summer months when daylight hours are the longest to

### 3.19.11 Energy and Peak Oil

Cumulative effects related to energy use are partially incorporated into the long-term energy demand estimates prepared for the CRC project.

Those estimates are based on travel demand forecasts that factor in 59 Hamlet and Lettenmaier, 1999.

60 Enertech Consultants, 1998.

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projected local changes in land use patterns, employment, population growth, and other programmed transportation improvements.

The cumulative energy impact of primary concern is “peak oil.” Peak oil refers to the point in time at which the maximum global petroleum production rate is reached, after which the rate of production enters a terminal decline. **Peak oil results from many incremental actions, few of which are individually important. However, the potential impact of**

**reaching peak global petroleum production is an important consideration for projects, such as CRC, intended to address transportation needs for decades to come.**

**Oil production in the United States—the world’s third largest oil producing nation—reached its peak around 1970 and has been in a declining trend since then. Most estimates place peak global production occurring some time between 1990 and 2040.**

rebuttal: No credible estimates ever placed peak around 1990. Even the earliest projection - from M. King Hubbert in 1956 - estimated that the global peak might be in the mid 1990s. While Hubbert’s 1956 prediction that the US would peak around 1970 was accurate, he was off by a decade for the global peak since he didn’t include the reduction of consumption that happened as a result of the 1973 Saudi Oil Embargo and gasoline disruptions as a result of the Iranian revolution.

Currently, in 2008, no credible scientist estimates that 2040 is the peak of global oil. The only debate among the experts who have closely examined the data is whether we are now at Peak Oil (on a temporary plateau) or whether the peak is just ahead, a couple of years in the future. Some disingenuous voices suggest that tar sands and coal to liquids should be given equal weight in this discussion even though they take nearly as much energy to produce as they contain. When fuels require more energy to produce than they contain, they cease to be sources of energy, regardless what the ostensible price is to purchase.

The SDEIS needs to factor in the best science about the state of petroleum geology and recognize that we are at - or at least near - the point of Peak Oil.

When oil production drops below oil demand, it is likely to cause petroleum prices to increase. There are uncertainties, however, regarding peak oil’s timing and the availability of substitute fuels. Peak oil’s effect on transportation fuel prices and travel behavior will depend largely on when peak oil occurs and the availability of substitute fuels.

Peak oil’s potential effects on economic activity and travel behavior could affect the CRC project. The concern is that if substitute fuels are not readily available as petroleum supplies decrease, **the rising cost and reduced supply of petroleum could directly reduce auto and truck travel, and could result in dramatic reductions in economic activity, which, among other effects, could further reduce vehicle trips below forecasts. These vehicle trip forecasts influence the proposed size, design, and financing of transportation facilities. If fuel prices increase faster than expected, then the number of 2030 highway trips could be lower than forecasted.** However, even with relatively substantial fuel price

rebuttal: Fuel prices have already increased faster than the assumptions used in the DEIS, which projected that 100 dollars a barrel might be reached by the year 2030. A SDEIS is needed to re-calibrate the traffic models to factor in the impacts of substantially higher energy prices (oil, natural gas, coal, etc) by 2030.

increases, the future demand would still be greater than the expanded highway capacity. Because fuel costs represent only a portion of total transportation costs (which include everything from car payments, to insurance and maintenance) even large growth in fuel costs translates to a smaller growth rate in total transportation cost, which is what most directly affects travel demand in the long term.

**Global oil demand is projected to grow by 37 percent by 2030**, driven in large part by transportation needs;<sup>62</sup> local transportation energy demand is expected to grow as well, although the CRC build alternatives are projected to reduce future transportation petroleum demand compared to No-Build. At the global scale, these fuel savings will be very small but incrementally beneficial over the No-Build Alternative.

rebuttal: demand may continue to grow, but no credible geologist suggests at this point (2008) that global oil extraction can grow by 37 percent by 2030. The only debate among Peak Oil experts is whether we have already peaked worldwide, or whether there might be some extra, secret oil in Saudi oil fields and a few other locations that will delay the peak a few years (although not to 2030 under any credible scenario). The work of the Association for the Study of Peak Oil - [www.peakoil.net](http://www.peakoil.net) and [www.aspo-usa.org](http://www.aspo-usa.org) - represents the best efforts of the world's pre-eminent petroleum geologists and does not support the claim that oil flows could theoretically increase in 2030 over current levels. A more realistic analysis would show that by 2030 we are more likely to have a 37 percent REDUCTION in oil supplies, although the decline could be steeper than this.

The CRC alternatives include a number of elements that would reduce adverse impacts related to peak oil. These include:

- The bridge and highway improvements are focused on replacing or updating aging infrastructure, not on building new highway corridors

61 Hirsch, 2005.

62 EIA, 2006.

What does the U.S.

Department of Energy say  
about peak oil?

A report by the US Department of Energy<sup>61</sup>  
included the following conclusions:

- **World oil peaking is going to happen, and will likely be abrupt.**
- **The problem is the demand for liquid fuels (growth in demand mainly from the transportation sector).**
- **Mitigation efforts will require substantial time.**

note: The Hirsch Report stated that we would need two decades to minimize the impact. Since Peak Oil is here, now, the subtext of this report is that President Jimmy Carter was right, but the fact that his half hearted efforts were sabotaged by the financial, political and military systems suggests that we are unprepared to cope with the unfolding crisis.

- Both supply and demand will require attention.
- More information is needed to more precisely determine the peak time frame.

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Has transportation  
infrastructure been able to  
adapt to change?

Transportation infrastructure has proven to be relatively adaptable. For example, the northbound I-5 bridge over the Columbia River was built in 1917 as a two-lane bridge that originally carried electric trolley cars and Model T autos (which ran on either gasoline or ethanol). While it is now obsolete in terms of seismic safety and traffic safety design standards, it was able to periodically adapt to nearly a century of changes in transportation technology, energy policy and prices, vehicle types, and travel behavior.

rebuttal: those changes were in the direction of increased energy consumption. We now face an era of declining energy consumption, a totally new experience without precedent (save for collapses of pre-industrial civilizations such as Rome)

- They include substantial improvements to public transportation, with projected increases in transit mode share in the afternoon peak direction from 13 percent with the No-Build to as much as 21 percent with light rail transit
- They provide substantially improved facilities for non-motorized transport
- They support land use planning that seeks to control sprawl,



concentrate development, and decrease auto dependency

- They include road use pricing (highway tolling)
- Because of the addition of high-capacity transit and the bridge toll, all build alternatives are projected to have lower daily I-5 river crossings than under the no-build.
- **They improve highway operations at a key pinch point which improves fuel efficiency and lowers emissions.**

rebuttal: Peak Traffic makes this assertion somewhat moot, since less traffic by 2030 will see reduced congestion anyway. Carpooling, increased public transit, telecommuting and other approaches will have more impact on energy consumption than pretending that doubling the width of the highway will reduce energy consumption.

- **They increase highway safety which decreases collisions and congestion, further improving fuel efficiency.**

rebuttal: While there may be some traffic safety issues to be mitigated with changes to road design, requiring drivers to prove they still know how to drive and to be courteous when getting a driver's license renewal would be the single most effective approach. There is no need to double the width of I-5 merely to reduce the risk of accidents, especially as Peak Traffic sets in.

**Another concern is the ability of current transportation infrastructure to adapt to post-peak oil vehicles and technology. Based on the alternative fuel vehicles that are currently being researched and developed, it is highly likely that the CRC infrastructure (transit guideway, bridges, highway, and bike and pedestrian paths) will be able to accommodate foreseeable changes. Electric hybrids, electric plug-ins, and vehicles powered by bio-diesel, ethanol, or hydrogen fuel cells are being designed to operate on modern roads and highways.** The CRC transit guideway,

rebuttal: Biodiesel is a great fuel (I use it) but it is unlikely to be scaled up to completely replace petroleum based diesel. Biodiesel also must be blended with petroleum diesel when temperatures go below 40 degrees (F). Some people suggest that (genetically altered) algae may be able to generate liquid fuels in substantial quantities, but this is not yet proven and the risks of these engineered organisms escaping into the environment and causing massive pollution is not well understood.

A biomass opponent recently wrote this:

*In 1992, at the Oregon State University's botany department, Professor Elaine Ingham stepped into a potential biotech Chernobyl. One of her graduate students discovered that all the wheat plants they had been growing in jars had been turned to brown mush, a result of*

*exposure to an engineered strain of Klebsiella planticola, a common soil bacteria. The engineered K planticola was designed to be a miracle product to decompose plant stubble and debris and to break down such for fertilizers, sludge and alcohol.*

*Professor Ingham saw the extreme danger presented if K planticola had escaped into the wild. (1) "That would have been the end of all terrestrial plants...it would have been dispersed any time a bird moved it to another field." she noted, even as the EPA had already approved K planticola as safe and ready for deployment. The monster germ was reluctantly shelved, Ingham and her graduate student were politically removed and the incident covered up.*

Hydrogen fuel cells currently lack long term viability and require extremely scarce platinum. If hydrogen can be created (and distributed on a large scale) it might have a role in mitigating the end of the oil age.

whether built for bus rapid transit or light rail, can be used by vehicles powered by a variety of fuels. The capacity of the proposed bicycle and pedestrian facilities can accommodate substantial growth in nonmotorized transportation demand. It is likely that the proposed CRC infrastructure could readily accommodate or adapt to the transition to substitute fuel vehicles, higher than projected growth in non-motorized modes, and higher growth in transit demand.

**There is substantial uncertainty regarding the timing of peak oil, the future availability of substitute fuels and technology, and the effects of peak oil on transportation. It is reasonable, however, to conclude that the CRC project can be relatively prepared, at the project level, to address reasonably foreseeable impacts associated with peak oil, and to reduce the project's incremental adverse impact.**

rebuttal: If the CRC DEIS cannot even acknowledge the substantial increases in oil prices during the preparation of this document, then claims that the project will be able to address Peak Oil are ludicrous beyond language.

Outside the purview of CRC, numerous other measures will influence the timing and impact of peak oil at the global and local scale. These other actions include national and international energy policies, international relations, fuel and transportation taxes and fees, alternative fuel and technology research and development, agricultural policy and practices, local land use regulations, and other measures.

## **4. Affected Environment**

### **4.1 Introduction**

Because the supply and distribution of petroleum (Washington's and Oregon's primary

energy source in general, and especially for the transportation sector) is regulated and distributed at the national and state levels, the affected environment is broadly inclusive of the U.S., Washington, and Oregon. This section provides a brief and general description of:

- The existing use and demand for energy resources in the nation and region.
- The present energy use for transportation.
- The available and forecasted supply of energy.

Because gasoline and diesel are the primary energy sources for the transportation sector,

this discussion provides general information on several energy sources, but focuses on the supply and demand of energy derived from petroleum-based fuel sources. Unless specifically defined otherwise, energy use refers to energy originating from crude oil products since energy derived from these sources generally account for over 95 percent of the total energy demand for the transportation sector.

## **4.2 National Energy Supply and Demand**

The USDOE prepares annual energy outlook reports with projections into the future (USDOE 2007a). The Annual Energy Outlook analyzes trends in energy supply and demand worldwide with linkages to projected performance of the U.S. economy and future public policy decisions. The most recent report analyzes historical energy use beginning in 1980 and provides supply and demand forecasts to 2030 (USDOE 2007a). Energy supply forecasts are largely based on international oil markets, and national energy demand projections are organized by delivered energy sources and use sectors.

### **4.2.1 National Energy Supply**

The national supply of petroleum largely depends on international factors. The majority of oil suppliers are currently at or near production capacity, with the exception of OPEC, who is the largest contributor to the international supply of petroleum. Since its inception in 1960, OPEC has historically had a substantial role in the international and U.S. petroleum supply. In general, when the world oil price is low (price often tracks supply), OPEC curtails supply, and when the price is high, OPEC increases production.

**In 2030, 66 percent of the U.S. petroleum supply is expected to be imported from international oil markets including OPEC members and other countries in the Far East, Caribbean, Europe and North America (other than the U.S.). Of this 66 percent, 37 percent is expected to originate from OPEC suppliers (USDOE 2007a).**

Rebuttal: The US already gets about two-thirds of its oil supply from outside the US. Since most of the known oil in the US has already been extracted, it is obvious that by 2030 nearly all US oil consumption is likely to be bought (or stolen via military power) from other countries. The only way that the ratio of foreign oil could remain relatively constant past the global peak is to begin to use much less oil, but that would force a substantial reduction in travel demand, which in turn means that a 12 lane bridge across the Columbia River would not be needed.

Interstate 5 Columbia River Crossing  
Energy Technical Report  
*Affected Environment*  
4-2 May 2008

Historically, world oil prices have varied considerably and are expected to continue to exhibit high fluctuations as a result of political instability, access restrictions, and a reassessment of OPEC producers' ability to influence prices during periods of volatility. As a result, the 2030 national supply of petroleum could vary substantially depending on world oil prices. Due to global political and economic uncertainties, **the USDOE Annual Energy Outlook world oil prices in 2030 were forecasted for three scenarios: "High Price," "Reference Price," and "Low Price" with the cost of oil at 100, 59, and 36 dollars per barrel, respectively (in 2005 dollars). In November 2006 the price of crude oil was about 60 dollars per barrel. One year later it had risen to between 90 and 100 dollars per barrel (2007 dollars). Depending on the world oil prices, the 2030 projections for petroleum imports ranged from 13.4 million barrels per day for the High Price scenario, 17.7 million barrels per day for the Reference Price, and 20.8 million barrels per day for the Low Price scenario.**

Rebuttal: The 100 dollar a barrel price was reached four months before the publication of the DEIS, not in the year 2030. Therefore, the traffic analysis for the CRC needs to be redone to factor in geological and financial reality - the end of cheap oil is here (regardless of the precise timing of Peak Oil).

The following discussions on national and local energy supply and demand are based on the Reference Price world oil prices.

#### **4.2.2 National Energy Demand**

The national demand for energy will depend on trends in population, economic activity, energy prices (which are reliant on the factors affecting the national supply described above), and the adoption and implementation of technology. In general, the energy consumption per capita is expected to increase 0.3 percent annually through 2030 primarily as a result of strong economic growth (USDOE 2007a). However, the nation's economy is becoming less reliant on energy as a result of energy efficient technologies and faster growth in less energy-intensive industries.

USDOE's annual energy outlook organizes national energy demand forecasts in 2030 by delivered energy source (liquid fuels/petroleum, natural gas, coal, electricity and renewables) and use sectors (residential, commercial, industrial, and transportation). According to the USDOE, the delivered energy use from all sources is expected to increase from 100.19 quadrillion Btu in 2005 to 131.16 quadrillion Btu in 2030, equating to annual demand growth rate of 1.1 percent (USDOE 2007d). **Energy from liquid fuels and other petroleum products is expected to account for the greatest share of energy**

**demand (approximately 40 percent) with a growth rate of approximately 1 percent.**

rebuttal: increase in petroleum based (and derived) liquid fuels are not going to be able to continue to increase on the Peak Oil downslope.

The energy demand from renewable sources is expected to have the highest growth rate (2.2 percent from biomass and 2.6 percent from other sources for a combined growth rate of 2.3 percent), but will continue to account for the smallest overall share of energy demand in 2030 (4.2 percent). Exhibit 4-1 summarizes the national demand for energy in 2005 by energy source with projections out to 2030.

## **Peak Asphalt**

[http://lcog.org/meetings/mpc/0806/MPC%205g1i\\_OregonianArticleonCostIncreases.pdf](http://lcog.org/meetings/mpc/0806/MPC%205g1i_OregonianArticleonCostIncreases.pdf)  
Soaring costs throw Oregon road projects a curve  
Rough road - Officials are facing steep price increases for asphalt and other materials  
Monday, July 31, 2006  
JAMES MAYER  
The Oregonian

[www.delmarvanow.com/apps/pbcs.dll/article?AID=/20060616/NEWS01/606160303/1002](http://www.delmarvanow.com/apps/pbcs.dll/article?AID=/20060616/NEWS01/606160303/1002)  
Asphalt prices delay pressing road repairs  
By Joseph Gidjunis  
Staff Writer  
The Daily Times, Salisbury, Maryland

[www.duluthsuperior.com/mld/duluthsuperior/news/politics/14837423.htm](http://www.duluthsuperior.com/mld/duluthsuperior/news/politics/14837423.htm)  
Fri, Jun. 16, 2006  
Asphalt prices skyrocket, highway officials scramble to adjust  
JOHN HARTZELL  
Associated Press

[www.ksla.com/Global/story.asp?S=5026843&nav=0RY5](http://www.ksla.com/Global/story.asp?S=5026843&nav=0RY5)  
SHREVEPORT, LA  
Asphalt Prices May Mean Fewer New Shreveport Street

[www.usatoday.com/printedition/news/20080606/1a\\_bottomstrip06\\_dom.art.htm](http://www.usatoday.com/printedition/news/20080606/1a_bottomstrip06_dom.art.htm)

## **Oil prices seep into asphalt costs, detour road work**

### **Repair projects are a blow to budgets**

**By Judy Keen**

**USA TODAY**

CHICAGO — Fewer roads will be repaved this summer, thanks to soaring prices of oil-based asphalt.

Some states, cities and counties say their road-repair budgets didn't anticipate asphalt prices that are up 25.9% from a year ago, so they're being forced to delay projects.

"We will do what patching we can, but this will truly, truly be a devastating blow to the infrastructure," says Shirlee Leighton, a county commissioner in Lake County, S.D., where a 5-mile repaving project was postponed after bids came in \$79,000-\$162,000 higher than the \$442,000 budget.

The mix used to resurface roads consists of gravel and sand held together with a binder called liquid asphalt, which is made from crude oil. As oil prices rise, so does the cost of asphalt, says Don Wessel of Poten & Partners, a consulting firm that publishes Asphalt Weekly Monitor. "Prices are the highest I've seen in many, many, many years," he says. "The concern is that they will go up considerably."

Increases in the cost of diesel fuel used to transport, heat and lay asphalt are adding to the sticker shock, too, creating headaches across the USA:

- Larimer County, Colo., would like to resurface 16-20 miles of its 450 miles of paved roads each year. "This year, we'll be lucky to do seven miles," says road and bridge director Dale Miller.

- Paul Degges, chief engineer for the Tennessee Department of Transportation, will resurface 1,600 miles of state highway this year, well short of his 2,500-mile target. "Since my budget is not growing and costs are up, we're doing less paving," he says.

- A few paved roads in Hall County, Neb., will revert to gravel surfaces, says public works director Casey Sherlock. "At some point, they'll be potholed so bad we won't be able to keep patching them." He had hoped to resurface 6-7 miles of road this spring and could afford only 2 miles.

- In Washington County, Md., acting deputy public works director Robert Slocum is using alternative treatments requiring less asphalt. The result: More miles are being treated with less asphalt, but "ride quality" can be compromised.

- Snohomish County, Wash., pays 17% more for asphalt than a year ago, says county engineer Owen Carter. It's pooling funds with four cities to get a better price.

- The Grand Traverse County (Mich.) Road Commission plans to bid out 30 miles of resurfacing before a bond issue of up to \$4 million is finalized to lock in prices before they go even higher, Road Commission manager Mary Gillis says.

Ken Simonson, chief economist for Associated General Contractors of America, says the asphalt-price squeeze exacerbates the USA's infrastructure problems and "may force Congress and the states to find more money for roads sooner than they would have otherwise."

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## Peak Denial

from the ASPO-USA Peak Oil Notes, October 29, 2009 [www.aspo-usa.org](http://www.aspo-usa.org)

Quote of the day:

**(Steven Chu, US Secretary of Energy) was my boss. He knows all about peak oil, but he can't talk about it. If the government announced that peak oil was threatening our economy, Wall Street would crash. He just can't say anything about it.**

-- David Fridley, scientist at Lawrence Berkeley National Laboratory, quoted in an article by Lionel Badal (see Peak Oil News, 10/28, item #23)

<http://www.guardian.co.uk/commentisfree/cif-green/2009/nov/10/peak-oil-fear-economic-establishment>

### Too fearful to publicise peak oil reality

**The economic establishment accepts the world soon won't be able to meet energy demands, but wants to keep quiet about it**

Madeleine Bunting [guardian.co.uk](http://guardian.co.uk)  
Tuesday 10 November 2009 14.30 GMT

It is very hard for the average person in the street to come to a sensible conclusion on peak oil. It's a subject that prompts a passionate polarisation of views. The peak oilists sometimes sound like those extraordinary Christians with sandwich boards proclaiming that the end of the world is nigh. In contrast, the the international economic establishment – including the International Energy Agency (IEA) – has one very clear purpose in mind at all times: don't panic. Their mission seems to be focused on keeping jittery markets calm.

Faced with these options the majority of people shrug their shoulders in confusion and ignore the trickle of whistleblowers, industry insiders and careful analysts who have been warning of the imminent decline in oil for over a decade now.

Remember the Queen's question – that uncannily accurate and strikingly obvious question she put to economists at the London School of Economics a year ago after the financial crisis: did no one see it coming? Apply that question to peak oil and the answer is that **many people did see it coming but they were marginalised, bullied into silence and the evidence was buried in the small print.**

Take the 2008 edition of World Energy Outlook, the annual report on which the entire energy industry and governments depend. It included the table also published by the Guardian today, and the version I saw had shorter intervals on the horizontal axis. What it made blindingly clear was that peak oil was somewhere in 2008/9 and that production from currently producing fields was about to drop off a cliff. Fields yet to be developed and yet to be found enabled a plateau of production and it was only "non-conventional oil" which enabled a small rise. Think tar sands of Canada, think some of the most climate polluting oil extraction methods available. Think catastrophe.



What made this little graph so devastating was that it estimated energy resources by 2030 that were woefully inadequate for the energy-hungry economies of India and China. Business as usual in oil production threatens massive conflict over sharing it.

Now, this all seemed pretty gigantic news to me but guess where the World Energy Outlook chose to put this graph? Was it in the front, was it prominently discussed in the foreword? Did it cause headlines around the world. No, no, no. It was buried deep into the report and no reference was made to it in the press conference a year ago.

The fear is that panicky markets can cause enormous damage – panic-buying that prompts fights over resources, which in turn could lead to power cuts in some places and other such mayhem. But so far in facing this huge challenge, **our political/economic system seems unable to cope with reality. We are forced to carry on living in an illusion that we have so much time to adapt to post-oil that we don't even need to be talking or thinking much about what a world without plentiful oil would look like. Reality has become too dangerous.**

So in reply to the Queen's question of a few years hence, **we did see it coming but we chose to ignore it.**

[www.guardian.co.uk/commentisfree/2009/nov/16/oil-running-out-madman-sandwich-board](http://www.guardian.co.uk/commentisfree/2009/nov/16/oil-running-out-madman-sandwich-board)

**The one thing depleting faster than oil is the credibility of those measuring it  
The challenge of feeding billions of people as fuel supplies fall is staggering. And yet  
leaders' heads remain stuck in the sand**

**By George Monbiot**

**The Guardian - UK**

**November 17, 2009**

I don't know when global oil supplies will start to decline. I do know that another resource has already peaked and gone into free fall: the credibility of the body that's meant to assess them. Last week two whistleblowers from the International Energy Agency alleged that it has deliberately upgraded its estimate of the world's oil supplies in order not to frighten the markets. Three days later, a paper published by researchers at Uppsala University in Sweden showed that the IEA's forecasts must be wrong, because it assumes a rate of extraction that appears to be impossible. The agency's assessment of the state of global oil supplies is beginning to look as reliable as Alan Greenspan's blandishments about the health of the financial markets.

If the whistleblowers are right, we should be stockpiling ammunition. If we are taken by surprise, if we have failed to replace oil before the supply peaks then crashes, the global economy is stuffed. But nothing the whistle-blowers said has scared me as much as the conversation I had last week with a Pembrokeshire farmer.

Wyn Evans, who runs a mixed farm of 170 acres, has been trying to reduce his dependency on fossil fuels since 1977. He has installed an anaerobic digester, a wind turbine, solar panels and a ground-sourced heat pump. He has sought wherever possible to replace diesel with his own electricity. Instead of using his tractor to spread slurry, he pumps it from the digester on to nearby fields. He's replaced his tractor-driven irrigation system with an electric one, and set up a new system for drying hay indoors, which means he has to turn it in the field only once. Whatever else he does is likely to produce smaller savings. But **these innovations have reduced his use of diesel by only around 25%.**

According to farm scientists at Cornell University, cultivating one hectare of maize in the United States requires 40 litres of petrol and 75 litres of diesel. The amazing productivity of modern farm labour has been purchased at the cost of a dependency on oil. Unless farmers can change the way it's grown, a permanent oil shock would price food out of the mouths of many of the world's people. Any responsible government would be asking urgent questions about how long we have got.

Instead, most of them delegate this job to the International Energy Agency. I've been bellyaching about the British government's refusal to make contingency plans for the possibility that oil might peak by 2020 for the past two years, and I'm beginning to feel like a madman with a sandwich board. Perhaps I am, but how lucky do you feel? The new World Energy Outlook published by the IEA last week expects the global demand for oil to rise from 85m barrels a day in 2008 to 105m in 2030. Oil production will rise to 103m barrels, it says, and biofuels will make up the shortfall. If we want the oil, it will materialise.

The agency does caution that conventional oil is likely to "approach a plateau" towards the end of this period, but there's no hint of the graver warning that the IEA's chief economist issued when I interviewed him last year: "We still expect that it will come around 2020 to a plateau ... I think time is not on our side here." Almost every year the agency has been forced to downgrade its forecast for the daily supply of oil in 2030: from 123m barrels in 2004, to 120m in 2005, 116m in 2007, 106m in 2008 and 103m this year. But according to one of the whistleblowers, "even today's number is much higher than can be justified, and the International Energy Agency knows this".

The Uppsala report, published in the journal *Energy Policy*, anticipates that maximum global production of all kinds of oil in 2030 will be 76m barrels per day. Analysing the IEA's figures, it finds that to meet its forecasts for supply, the world's new and undiscovered oilfields would have to be developed at a rate "never before seen in history". As many of them are in politically or physically difficult places, and as capital is short, this looks impossible. Assessing existing fields, the likely rate of discovery and the use of new techniques for extraction, the researchers find that "the peak of world oil production is probably occurring now".

Are they right? Who knows? Last month the UK Energy Research Centre published a massive review of all the available evidence on global oil supplies. It found that the date of peak oil will be determined not by the total size of the global resource but by the rate at which it can be exploited. New discoveries would have to be implausibly large to make a significant difference: even if a field the size of all the oil reserves ever struck in the US were miraculously discovered, it would delay the date of peaking by only four years. As global discoveries peaked in the 1960s, a find like this doesn't seem very likely.

Regional oil supplies have peaked when about one third of the total resource has been extracted: this is because the rate of production falls as the remaining oil becomes harder to shift when the fields are depleted. So the assumption in the IEA's new report, that oil production will hold steady when the global resource has fallen "to around one half by 2030" looks unsafe. The UK Energy Research Centre's review finds that, just to keep oil supply at present levels, "more than two thirds of current crude oil production capacity may need to be replaced by 2030 ... At best, this is likely to prove extremely challenging." There is, it says "a significant risk of a peak in conventional oil production before 2020". Unconventional oil won't save us: even a crash programme to develop the Canadian tar sands could deliver only 5m barrels a day by 2030.

As a report commissioned by the US Department of Energy shows, **an emergency programme to replace current energy supplies or equipment to anticipate peak oil would need about 20 years to take effect. It seems unlikely that we have it.** The world economy is probably knackered, whatever we might do now. But at least we could save farming. There are two possible options: either the mass replacement of farm machinery or the development of new farming systems that don't need much labour or energy.

There are no obvious barriers to the mass production of electric tractors and combine harvesters: the weight of the batteries and an electric vehicle's low-end torque are both advantages for tractors. A switch to forest gardening and other forms of permaculture is trickier, especially for producing grain; but such is the scale of the creeping emergency that we can't afford to rule anything out.

**The challenge of feeding seven or eight billion people while oil supplies are falling is stupefying. It'll be even greater if governments keep pretending that it isn't going to happen.**

## Spy Roads: Civil Liberties vs. Transportation Surveillance

European Parliament – Luxembourg, 6 January 1998 – Directorate General for Research

Scientific and Technological Options Assessment – An Appraisal of Technologies of Political Control

archived at <http://www.cryptome.org/stoa-atpc.htm>

### Vehicle Recognition Systems

... A huge range of surveillance technologies has evolved, including the night vision goggles discussed in 3 above; parabolic microphones to detect conversations over a kilometre away (see Fig. 18); laser versions marketed by the German company PK Electronic, can pick up any conversation from a closed window in line of sight; the Danish Jai stroboscopic camera (Fig. 19) which can take hundreds of pictures in a matter of seconds and individually photograph all the participants in a demonstration or March; and the automatic vehicle recognition systems which can identify a car number plate then track the car around a city using a computerised geographic information system. (Fig.20) Such systems are now commercially available, for example, the Talon system introduced in 1994 by UK company Racal at a price of £2000 per unit. The system is trained to recognise number plates based on neural network technology developed by Cambridge Neurodynamics, and can see both night and day. Initially it has been used for traffic monitoring but its function has been adapted in recent years to cover security surveillance and has been incorporated in the "ring of steel" around London. The system can then record all the vehicles that entered or left the cordon on a particular day.

Such surveillance systems raise significant issues of accountability particularly when transferred to authoritarian regimes. The cameras ... in Tiananmen Square were sold as advanced traffic control systems by Siemens Plessey. Yet after the 1989 massacre of students, there followed a witch hunt when the authorities tortured and interrogated thousands in an effort to ferret out the subversives. The Scoot surveillance system with USA made Pelco camera were used to faithfully record the protests. the images were repeatedly

broadcast over Chinese television offering a reward for information, with the result that nearly all the transgressors were identified. Again **democratic accountability is only the criterion which distinguishes a modern traffic control system from an advanced dissident capture technology**. Foreign companies are exporting traffic control systems to Lhasa in Tibet, yet Lhasa does not as yet have any traffic control problems. **The problem here may be a culpable lack of imagination.**

“that [surveillance] capability at any time could be turned around on the American people and no American would have any privacy left, such [is] the capability to monitor everything: telephone conversations, telegrams, it doesn't matter. There would be no place to hide. If this government ever became a tyranny, **if a dictator ever took charge in this country, the technological capacity that the intelligence community has given the government could enable it to impose total tyranny**, and there would be no way to fight back, because the most careful effort to combine together in resistance to the government, no matter how privately it was done, is within the reach of the government to know. Such is the capability of this technology ...

“I don't want to see this country ever go across the bridge. I know the capacity that is there to make tyranny total in America, and we must see to it that this agency [NSA] and all agencies that possess this technology operate within the law and under proper supervision, so that we never cross over that abyss. That is the abyss from which there is no return.”

-- Senator Frank Church (D-Idaho), 1975, quoted in James Bamford, “The Puzzle Palace”

**“If this were a dictatorship, it would be a heck of a lot easier, just so long as I'm the dictator.”**

- **George W. Bush**, December 18, 2000

[www.baltimoresun.com/news/local/bal-te.md.reader03apr03,0,73671.story?coll=bal-home-headlines](http://www.baltimoresun.com/news/local/bal-te.md.reader03apr03,0,73671.story?coll=bal-home-headlines)

Cameras scan license plates for stolen cars

By Melissa Harris

Sun reporter

Originally published April 3, 2006

As her marked car crawled through the parking lot, Detective Kelly Tibbs' new laptop beeped like a supermarket scanner. Two cameras, positioned like crab eyes on the cruiser's roof, snapped digital pictures of hundreds of license plates, and with each beep, the laptop checked the images against an FBI list of stolen cars.

Such cameras - called Mobile Plate Hunters - are replacing the laborious eyeball-and-keystroke method of checking for stolen cars, letting busy officers rely instead on an automated scan that takes less than a second.

Already in widespread use in London and Italy, automatic number plate recognition is a technology on the verge of exploding in the Baltimore-Washington area, fueled in places by funds from the federal Department of Homeland Security.

Howard and Anne Arundel counties deploy one each. Prince George's County and the District of Columbia have ordered more than a dozen of the cameras, which have been in use in Prince George's since August and the district since January.

Baltimore police are soliciting bids for a system that would work with the city's existing network of street surveillance cameras. And as early as this summer's vacation rush, Maryland Transportation Authority Police hope to add the cameras to the Bay Bridge as part of a pilot project with the U.S. Department of Justice.

Stationary cameras, such as those envisioned for Baltimore and the Bay Bridge, could alert nearby officers if an offending vehicle - one bearing a license plate registered to a wanted criminal, suspected terrorist or car thief - goes past.

**"The uses are as limitless as your imagination,"** said Lt. John McKissick, director of Howard County's emergency preparedness division. "We're just in the infancy of this project, but already it saves us money and manpower."

Although proponents say the technology eventually will deny all but the most clever of criminals access to roads, privacy advocates warn that the plate hunters mark another step toward a society in which police can track a person's every move.

"Normally, your license plate number only becomes relevant when you're involved in an accident, pulled over by police or when your car is stolen," said Marc Rotenberg, executive director of the Electronic Privacy Information Center. "This technology changes that. ... It's a new form of surveillance."

The technology, which Tibbs demonstrated in the parking lot of Howard County police headquarters, was developed in Italy and used by the Italian postal service. Postcards would zip along a conveyer belt, the cameras would read them, and the computer would sort them.

"The engineers in Italy realized that if they could read Bulgarian postcards handwritten with pencil at high speeds, license plates would be a piece of cake," said Mark Windover, president of Remington-Elsag, a partnership between the U.S. gun manufacturer and the Italian postal-technology company, which sold a plate hunter to Howard County for \$26,000.

The plate hunters use infrared light to "read" as many as 900 license plates per minute zooming by at speeds of up to 120 miles per hour in the rain or dark, McKissick said.

Infrared light illuminates the plate, the camera snaps a picture and the computer converts it into digital characters - ABC 123, for example - using optical character recognition. Strapping two cameras to a roof allows the system to go through a mall parking lot, checking plates on both sides of the police car.

Each night, local police departments download FBI data to in-car laptops. When a scanned license plate matches one in the FBI database, the computer triggers an alarm, and the screen blinks red "alert" signs. Before officers can make an arrest, they must check the accuracy of the alert because the database lags a day behind, and the system does not distinguish among states.

"In one block in Washington, I recovered six sets of stolen tags and a stolen motorcycle using the reader," said state police Detective Sgt. George Jacobs, assistant commander of the Washington-area vehicle enforcement unit. "It's just amazing that there are areas out there like that. It's a great tool because manually, it would have taken me several hours to type in the tags."

Though the primary purpose of the technology is to recover stolen vehicles, Howard County and other jurisdictions plan to eventually use the cameras for surveillance.

McKissick said he envisions placing cameras around potential terrorist targets and linking them to neighboring counties' systems. For instance, if the same license plate passes emergency communications towers in Howard, Baltimore and Anne Arundel counties, the system could alert police in all three areas.

The technology also could be used to enforce laws or court orders that keep sexual predators away from schools or domestic abusers away from spouses.

Already, when Tibbs learns of an Amber Alert, she can enter the tag number manually into her laptop and search for the car. The system also is linked to the FBI's "violent gangs and terrorism organization file," though Howard County is not yet using it because the plate hunter is still new to the department, McKissick said.

"We want to be able to look at offenders with another set of eyes," said Chief Gary W. McLhinney of the Maryland Transportation Authority Police, which is working to secure a pilot program for the technology at the Bay Bridge.

McKissick and other officers dismiss concerns that the cameras invade drivers' privacy. McKissick said the machine is "strictly a numbers game," enabling officers to do more of what they already do.

Jacobs said the system does not discriminate and that the computer does not list a tag owner's information unless it sounds an alert on the car. Without the computer, officers choose which license plates they check, lacking the time to manually enter every one they see.

"There can be no discrimination," Jacobs said, "because the machine picks and runs every tag it sees."

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## Britain's auto Panopticon

<http://news.independent.co.uk/uk/transport/article334686.ece>

Britain will be first country to monitor every car journey

From 2006 Britain will be the first country where every journey by every car will be monitored

By Steve Connor, Science Editor

Published: 22 December 2005

**Britain is to become the first country in the world where the movements of all vehicles on the roads are recorded. A new national surveillance system will hold the records for at least two years.**

**Using a network of cameras that can automatically read every passing number plate, the plan is to build a huge database of vehicle movements so that the police and security services can analyse any journey a driver has made over several years.**

The network will incorporate thousands of existing CCTV cameras which are being converted to read number plates automatically night and day to provide 24/7 coverage of all motorways and main roads, as well as towns, cities, ports and petrol-station forecourts.

By next March a central database installed alongside the Police National Computer in Hendon, north London, will store the details of 35 million number-plate "reads" per day. These will include time, date and precise location, with camera sites monitored by global positioning satellites.

Already there are plans to extend the database by increasing the storage period to five years and by linking thousands of additional cameras so that details of up to 100 million number plates can be fed each day into the central databank.

Senior police officers have described the surveillance network as possibly the biggest advance in the technology of crime detection and prevention since the introduction of DNA fingerprinting.

But others concerned about civil liberties will be worried that the movements of millions of law-abiding people will soon be routinely recorded and kept on a central computer database for years.

The new national data centre of vehicle movements will form the basis of a sophisticated surveillance tool that lies at the heart of an operation designed to drive criminals off the road.

In the process, the data centre will provide unrivalled opportunities to gather intelligence data on the movements and associations of organised gangs and terrorist suspects whenever they use cars, vans or motorcycles.

The scheme is being orchestrated by the Association of Chief Police Officers (Acpo) and has the full backing of ministers who have sanctioned the spending of £24m this year on equipment.

More than 50 local authorities have signed agreements to allow the police to convert thousands of existing traffic cameras so they can read number plates automatically. The data will then be transmitted to Hendon via a secure police communications network.

Chief constables are also on the verge of brokering agreements with the Highways Agency, supermarkets and petrol station owners to incorporate their own CCTV cameras into the network. In addition to cross-checking each number plate against stolen and suspect vehicles held on the Police National Computer, the national data centre will also check whether each vehicle is lawfully licensed, insured and has a valid MoT test certificate.

"Every time you make a car journey already, you'll be on CCTV somewhere. The difference is that, in future, the car's index plates will be read as well," said Frank Whiteley, Chief Constable of Hertfordshire and chairman of the Acpo steering committee on automatic number plate recognition (ANPR).

"What the data centre should be able to tell you is where a vehicle was in the past and where it is now, whether it was or wasn't at a particular location, and the routes taken to and from those crime scenes. Particularly important are associated vehicles," Mr Whiteley said.

The term "associated vehicles" means analysing convoys of cars, vans or trucks to see who is driving alongside a vehicle that is already known to be of interest to the police. Criminals, for instance, will drive somewhere in a lawful vehicle, steal a car and then drive back in convoy to commit further crimes "You're not necessarily interested in the stolen vehicle. You're interested in what's moving with the stolen vehicle," Mr Whiteley explained.

According to a strategy document drawn up by Acpo, the national data centre in Hendon will be at the heart of a surveillance operation that should deny criminals the use of the roads.

"The intention is to create a comprehensive ANPR camera and reader infrastructure across the country to stop displacement of crime from area to area and to allow a comprehensive picture of vehicle movements to be captured," the Acpo strategy says.

"This development forms the basis of a 24/7 vehicle movement database that will revolutionise arrest, intelligence and crime investigation opportunities on a national basis," it says.

Mr Whiteley said MI5 will also use the database. "Clearly there are values for this in counter-terrorism," he said.

"The security services will use it for purposes that I frankly don't have access to. It's part of public protection. If the security services did not have access to this, we'd be negligent."



[http://news.com.com/E-tracking,+coming+to+a+DMV+near+you/2010-1071\\_3-5980979.html](http://news.com.com/E-tracking,+coming+to+a+DMV+near+you/2010-1071_3-5980979.html)

DECLAN MCCULLAGH, CNET, December 5, 2005

Trust federal bureaucrats to take a good idea and transform it into a frightening proposal to track Americans wherever they drive.

The U.S. Department of Transportation has been handing millions of dollars to state governments for GPS-tracking pilot projects designed to track vehicles wherever they go. So far, Washington state and Oregon have received fat federal checks to figure out how to levy these "mileage-based road user fees."

Now electronic tracking and taxing may be coming to a DMV near you. The Office of Transportation Policy Studies, part of the Federal Highway Administration, is about to announce another round of grants totaling some \$11 million. A spokeswoman on Friday said the office is "shooting for the end of the year" for the announcement, and more money is expected for GPS (Global Positioning System) tracking efforts.

In principle, the idea of what bureaucrats like to call "value pricing" for cars makes sound economic sense.

No policy bans police from automatically sending out speeding tickets based on what the GPS data say.

Airlines and hotels have long charged less for off-peak use. Toll roads would be more efficient--in particular, less congested--if they could follow the same model and charge virtually nothing in the middle of the night but high prices during rush hour.

That price structure would encourage drivers to take public transportation, use alternate routes, or leave earlier or later in the day.

The problem, though, is that these "road user fee" systems are being designed and built in a way that strips drivers of their privacy and invites constant surveillance by police, the FBI and the Department of Homeland Security.

#### Zero privacy protections

Details of the tracking systems vary. But the general idea is that a small GPS device, which knows its location by receiving satellite signals, is placed inside the vehicle.

Some GPS trackers constantly communicate their location back to the state DMV, while others record the location information for later retrieval. (In the Oregon pilot project, it's beamed out wirelessly when the driver pulls into a gas station.)

The problem, though, is that no privacy protections exist. No restrictions prevent police from continually monitoring, without a court order, the whereabouts of every vehicle on the road.

No rule prohibits that massive database of GPS trails from being subpoenaed by curious divorce attorneys, or handed to insurance companies that might raise rates for someone who spent too much time at a neighborhood bar. No policy bans police from automatically sending out speeding tickets based on what the GPS data say.

The Fourth Amendment provides no protection. The U.S. Supreme Court said in two cases, *U.S. v. Knotts* and *U.S. v. Karo*, that Americans have no reasonable expectation of privacy when they're driving on a public street.

#### The PR offensive

Even more shocking are additional ideas that bureaucrats are hatching. A report prepared by a Transportation Department-funded program in Washington state says the GPS bugs must be made "tamper proof" and the vehicle should be disabled if the bugs are disconnected.

"This can be achieved by building in connections to the vehicle ignition circuit so that failure to receive a moving GPS signal after some default period of vehicle operation indicates attempts to defeat the GPS antenna," the report says.

It doesn't mention the worrisome scenario of someone driving a vehicle with a broken GPS bug--and an engine that suddenly quits half an hour later. But it does outline a public relations strategy (with "press releases and/or editorials" at a "very early stage") to persuade the American public that this kind of contraption would be, contrary to common sense, in their best interest.

One study prepared for the Transportation Department predicts a PR success. "Less than 7 percent of the respondents expressed concerns about recording their vehicle's movements," it says.

That whiff of victory, coupled with a windfall of new GPS-enabled tax dollars, has emboldened DMV bureaucrats. A proposal from the Oregon DMV, also funded by the Transportation Department, says that such a tracking system should be mandatory for all "newly purchased vehicles and newly registered vehicles."

The sad reality is that there are ways to perform "value pricing" for roads while preserving anonymity. You could pay cash for prepaid travel cards, like store gift cards, that would be debited when read by roadside sensors. Computer scientists have long known how to create electronic wallets--using a technique called blind signatures--that can be debited without privacy concerns.

The Transportation Department could require privacy-protective features when handing out grants for pilot projects that may eventually become mandatory. It's now even more important because a new U.S. law ups the size of the grants; the U.K. is planning GPS tracking and per-mile fees ranging between 3 cents and \$2.

We'll see. But given the privacy hostility that the Transportation Department and state DMVs have demonstrated so far, don't be too optimistic.

[http://news.com.com/2102-1071\\_3-5980979.html?tag=st.util.print](http://news.com.com/2102-1071_3-5980979.html?tag=st.util.print)

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**BIG BROTHER COMING UNDER YOUR CAR HOOD**

JEFF GRAY, GLOVE AND MAIL, CA- It's the last thing many motorists would want -- a permanent, electronic back-seat driver, forcefully reminding them not to speed. But Transport Canada is road-testing cutting-edge devices that use global positioning satellite technology and a digital speed-limit map to know when a driver is speeding, and to try to make them stop. When a driver hits a certain percentage above the posted speed limit, the device kicks in and makes it difficult to press the accelerator. While the idea appeals to some road-safety experts, even the researcher in charge of the project admits many drivers -- some of whom have shown fierce resistance to photo-radar and red-light cameras -- may balk at the science-fiction scenario of a machine forcing them to apply the brakes. . . In Europe, proponents have said that the technology should be mandatory in all vehicles or that insurance companies might offer discounts to drivers who use it.

BOSTON HERALD - Over the coming year, the T will install automated fare collection equipment at every subway station and on every bus, allowing riders to pay easily with taps of special smart cards in their names. But each transaction with the plastic Charlie Cards will be

recorded electronically, creating a record of where users were at a particular time on a particular day. Those records could be subpoenaed by cops, courts or even lawyers in civil cases. "The bottom line is that like other developments with consumer products and technology, the convenience does have a flip side. It's convenience versus having the government be able to track you," said privacy expert Eric Gertler. . .

The new automated fare system will record where a passenger boards the system and at what time. The system won't capture any data on the rider's destination. The information will be archived for a year and a half to two years before it's erased. . .

The Massachusetts Turnpike Authority has for years recorded where and when users of the Fas tLane electronic transponders get on and off the toll highway. Unlike the MBTA, the Turnpike's privacy protections barring outside release of the data without a subpoena are written into state law. "On a fairly regular basis we receive subpoena requests both civil and criminal," Pike spokesman Tom Farmer said.

<http://news.bostonherald.com/localRegional/view.bg?articleid=118780&format=text>

<http://news.independent.co.uk/uk/transport/story.jsp?story=644303>

Satellite toll plan to make drivers pay by the mile

Darling orders nationwide road pricing. Charge of £1.34 a mile on busiest roads

By Francis Elliott, Deputy Political Editor

05 June 2005

British motorists face paying a new charge for every mile they drive in a revolutionary scheme to be introduced within two years.

Drivers will pay according to when and how far they travel throughout the country's road network under proposals being developed by the Government.

Alistair Darling, the Secretary of State for Transport, revealed that pilot areas will be selected in just 24 months' time as he made clear his determination to press ahead with a national road pricing scheme.

Each of Britain's 24 million vehicles would be tracked by satellite if a variable "pay-as-you-drive" charge replaces the current road tax.

In an interview with The Independent on Sunday, Mr Darling warned that unless action is taken now, the country "could face gridlock" within two decades.

Official research suggests national road pricing could increase the capacity of Britain's network by as much as 40 per cent at a stroke, he said.

The rapid uptake of satellite navigational technology in cars is helping to usher in the new "pay-as-you-drive" charge much sooner than had been expected. Figures contained in a government feasibility study have suggested motorists could pay up to £1.34 for each mile they travel during peak hours on the most congested roads.

Although a fully operational national scheme is still considered to be a decade away, Mr Darling said local schemes could be up and running within five years. Manchester is considered a front-runner, with local authorities in the Midlands and London also pressing to be considered for a £2.5bn central fund to introduce the change.

Most of the necessary technology already exists. Lorries will be tracked by satellite and charged accordingly from 2007. The main obstacle to constructing a scheme to track Britain's 24 million private vehicles is public opinion, and Mr Darling is determined to start making the case now.

"You could dance around this for years but every year the problem is getting worse," he said.

"We have got to do everything we can during the course of this Parliament to decide whether or not we go with road pricing. Something of this magnitude will span several parliaments and you need 'buy-in' not just from political parties but also from the general public.

"Drivers have got to see that they benefit," he said, adding that one of the "weaknesses" of the congestion charging scheme introduced in the capital by the Mayor of London, Ken Livingstone, was that it delivered a "general benefit not a particular benefit". Motorists could feel they are paying a penalty to support buses they do not use.

The national road-pricing scheme, by contrast, has got to work so there's "something in it for me", said Mr Darling in advance of a keynote speech on the issue this Thursday.

Despite his insistence that the scheme would lead to no overall increase in the level of taxation as road taxes and fuel duties are reduced or abolished, it is bound to prompt fresh claims that Labour is waging a "war on motorists".

Some campaigners, meanwhile, are pressing Mr Darling to introduce new levies on individual roads immediately, using existing microwave technology or tolls. But that would force traffic on to quieter roads while entrenching opposition to a national scheme, ministers believe.

However, new and expanded roads are likely to see innovations such as car-sharing lanes, available to single drivers only if they pay a premium.

## **Geoslavery: GPS and technological tyranny**

[www.ur.ku.edu/News/03N/MarchNews/March5/dobson.html](http://www.ur.ku.edu/News/03N/MarchNews/March5/dobson.html)

March 5, 2003

KU researcher warns against potential threat of 'geoslavery'

LAWRENCE -- Jerome Dobson wants to make sure his field of research doesn't aid the greatest threat to personal freedom.

As a pioneer of geographic information systems (GIS), Dobson, a researcher at the Kansas Applied Remote Sensing Program at the University of Kansas, helped develop the technology that now is commonplace in government, business and practically every aspect of modern life.

Since 1975, Dobson has used GIS for a number of applications -- from conducting environmental analyses to identifying populations at risk of terrorism and natural disasters -- by combining data sets such as detailed population counts of every country in the world, terrain and nighttime lights interpreted from satellite images, road networks and elevations. Dobson, who is a professor of geography at KU, also is president of the American Geographical Society.

Unfortunately, the same technology that has so many beneficial uses also has the potential to create a highly sophisticated form of slavery, or "geoslavery," as Dobson calls it. What worries Dobson is that GIS technology easily could be used not only to spy on people but to control them as well.

"It concerns me that something I thought was wonderful has a downside that may lead to geoslavery -- the greatest threat to freedom we've ever experienced in human history," he said.

By combining GIS technology with a global positioning system (GPS) and a radio transmitter and receiver, someone easily can monitor your movements with or without your knowledge. Add to that a transponder -- either implanted into a person or in the form of a bracelet -- that sends an electric shock any time you step out of line, and that person actually can control your movements from a distance.

Sound like something from a bad sci-fi movie? Actually, several products currently on the market make this scenario possible.

"In many ways that's what we're doing with prisoners right now, but they've been through a legal process," he said.

In fact, many of the existing products are marketed to parents as a way to protect their children from kidnappers. Dobson, however, said parents should think twice before using such products.

"A lot of people think this is a way to protect their children," he said. "But most kidnappers won't have any compunction about cutting the child to remove an implant or bracelet."

Furthermore, these products rely on wireless networks, which are notoriously easy for hackers to break into, potentially turning the very products meant to protect children into fodder for tech-savvy child predators.

Dobson outlined the dangers of geoslavery in an article that appears in the most recent issue of the Institute of Electrical and Electronics Engineers' Technology and Society magazine. Peter F. Fisher, editor of the International Journal of Geographic Information Science, co-wrote the paper with Dobson. More than 375,000 scientists read the IEEE magazine.

One of the greatest dangers of geoslavery is that it doesn't apply just to governments. For example, individuals could use the technology to perpetuate various forms of slavery, from child laborers to sex slaves to a simple case of someone controlling the whereabouts of his or her spouse, Dobson said.

"Many people have concerns today about privacy but they haven't put all the pieces together and realized this means someone can actually control them -- not just know about them, but control them," Dobson said.

As the price of these products gets cheaper and cheaper, the likelihood rises that the technology will be abused, he said. To prevent this, Dobson's paper outlines a number of actions that should be taken, including revising national and international laws on incarceration, slavery, stalking and branding, and developing encryption systems that prevent criminals or countries with bad human rights records from accessing GPS signals.

Still, the first step is making people aware of the very real threat that geoslavery poses. The potential for harm is even greater in less developed nations without strong traditions of personal freedom, he said.

"We need a national dialogue on this if we're going to go into something so different from our traditional values of privacy and freedom," Dobson said. "We need to think about it very carefully and decide if this is a direction we as a society want to go."

Dobson said he doesn't consider himself a crusader. Instead, he is a scientist who is working diligently to ensure that people really understand the good and bad sides of the technology he helped create.

"There certainly are many, many good uses for the technology -- that's not the issue -- the issue is that it can be so easily misused," he said. "My role as a university professor is to alert people and make sure there is an informed debate."

[http://www.smartmobs.com/archive/2003/03/12/gps\\_spawns\\_fear.html](http://www.smartmobs.com/archive/2003/03/12/gps_spawns_fear.html)

CNN reports on Jerome Dobson's concerns that GPS technology may be hazardous to personal liberties. Dobson is president of the American Geographical Society. "Geoslavery" is a good word for describing one of the biggest downsides to smartmob technology.

[http://charlotte.creativeloafing.com/2004-09-29/news\\_cover.html](http://charlotte.creativeloafing.com/2004-09-29/news_cover.html)

NEWS COVER 09.29.04

Big Brother In Your Car

Futuristic hi-tech could save your life -- and raid your privacy

BY TARA SERVATIUS

Deep inside the United States Department of Transportation, Big Brother is rearing his head. On the third floor of the USDOT building in the heart of Washington, DC, a shadowy government agency that doesn't respond to public inquiries about its activities is coordinating a plan to use monitoring devices to catalogue the movements of every American driver.

Most people have probably never heard of the agency, called the Intelligent Transportation Systems Joint Program Office. And they haven't heard of its plans to add another dimension to our national road system, one that uses tracking and sensor technology to erase the lines between cars, the road and the government transportation management centers from which every aspect of transportation will be observed and managed.

For 13 years, a powerful group of car manufacturers, technology companies and government interests has fought to bring this system to life. They envision a future in which massive databases will track the comings and goings of everyone who travels by car or mass transit. The only way for people to evade the national transportation tracking system they're creating will be to travel on foot. Drive your car, and your every movement could be recorded and archived. The federal government will know the exact route you drove to work, how many times you braked along the way, the precise moment you arrived -- and that every other Tuesday you opt to ride the bus.

They'll know you're due for a transmission repair and that you've neglected to fix the ever-widening crack that resulted from a pebble dinging your windshield.

Once the system is brought to life, both the corporations and the government stand to reap billions in revenues. Companies plan to use the technology to sell endless user services and upgrades to drivers. For governments, tracking cars' movements means the ability to tax drivers for their driving habits, and ultimately to use a punitive tax system to control where they drive and when, a practice USDOT documents predict will be common throughout the country by 2022.

This system the government and its corporate partners are striving to create goes by many names, including the information superhighway and the Integrated Network of Transportation information, or INTI. Reams of federal documents spell out the details of how it will operate.

Despite this, it remains one of the federal government's best-kept secrets. Virtually nothing has been reported about it in the media. None of the experts at the privacy rights groups Creative Loafing talked to, including the ACLU, the Consumers Union and the Privacy Rights Clearinghouse, had ever heard of the INTI. Nor had they heard of the voluminous federal documents that spell out, in eerie futuristic tones, what data the system will collect and how it will impact drivers' daily lives.

Buried inside two key federal documents lies a chilling cookbook for a Big Brother-style transportation-monitoring system. None of the privacy experts we talked to was aware of a 2002 USDOT document called the "National Intelligent Transportation Systems Program Plan: A Ten-Year Vision" or the "National ITS Architecture ITS Vision Statement," published by the Federal Highway Administration in 2003.

What's more, no one we talked to was aware of just how far the USDOT has come in developing the base technology necessary to bring the system to life.

More than \$4 billion in federal tax dollars has already been spent to lay the foundation for this system. Some of the technologies it will use to track our movements are already familiar to

the public, like the GPS technology OnStar already used to pinpoint the location of its subscribers. Others are currently being developed by the USDOT and its sub-agencies.

Five technology companies hired by the USDOT to develop the transceivers, or "on-board units," that will transmit data from your car to the system are expected to unveil the first models next spring. By 2010, automakers hope to start installing them in cars. The goal is to equip 57 million vehicles by 2015.

Once the devices are installed, the technology will allow cars to talk to each other in real time, transmitting information about weather, dangerous road conditions ahead and even warning drivers instantaneously of an impending collision. When used in combination with GPS technology already being installed in millions of cars, the INTI will be able to transmit real-time information about where your car is and where you've been.

Though Joint Project Office officials refused to talk to Creative Loafing about the next step in their plan, one official defined it simply in a presentation before the National Research Council in January.

"The concept," said Bill Jones, Technical Director of the Joint Office, "is that vehicle manufacturers will install a communications device on the vehicle starting at some future date, and equipment will be installed on the nation's transportation system to allow all vehicles to communicate with the infrastructure."

"The whole idea here is that we would capture data from a large number of vehicles," Jones said at another meeting of transportation officials in May. "That data could then be used by public jurisdictions for traffic management purposes and also by private industry, such as DaimlerChrysler, for the services that they wish to provide for their customers."

According to USDOT's 10-year plan, the key "data" the INTI will collect is "the identity and performance of transportation system users."

"It's going to happen," said Jean-Claude Thill, a professor at the University of Buffalo who specializes in transportation and geographic information and who has done research for USDOT. "It's probably going to start in the large metropolitan areas where there's a much larger concentration and more demand for the services that are going to be made available."

With this system, and the fantastic technology it will enable, the government and the auto industry claim they can wipe out all but a fraction of the 42,000 deaths on America's roads by literally intervening between the drivers, cars and the road. But as they careen toward making it a reality, its costs in terms of individual privacy have barely been contemplated.

If the government has its way, these technologies will no longer be optional. They'll be buried deep inside our cars at the auto factory, unremovable by law. If things go as planned, within the next decade these devices will begin transmitting information about us to the government, regardless of whether we want to share it or not.

More chilling still is the fact that Creative Loafing isn't the first to use the "Big Brother" label to describe the system. Even the corporate leaders working to create it refer to it in Orwellian terms. At a workshop for industry and government leaders last year, John Worthington, the President and CEO of TransCore -- one of the companies currently under contract to develop the on-board units USDOT wants to put in your car -- described INTI as "kind of an Orwellian all-singing, all-dancing collector/aggregator/disseminator of transportation information."

This story really begins in 1991, the year Congress established a program to develop and deploy what is now called "Intelligent Transportation Systems," or ITS. At the time, most ITS technology was in its infancy. But even back then, the long-term goal of the federal government and the automobile industry was to develop and deploy a nationwide traffic monitoring system. A transportation technology industry quickly sprang to life over the next decade, feeding off federal money and the corporate demand for wireless technology.



Since 1991, the driving force behind the INTI has been the Washington, DC-based Intelligent Transportation Society of America (ITSA). This powerful group of government and corporate interests has spent tens of millions of dollars lobbying to bring the INTI to life and worked side by side with USDOT and its agencies to create it.

A look at its shockingly broad 500-organization membership base shows just how much clout is behind the push to create the information superhighway. Forty-three of the 50 state Departments of Transportation are members, including the North Carolina DOT. Dozens of transportation departments from large and medium-sized cities, including the Charlotte Area Transit System, are also members. So are most of the key corporate players in the transportation technology industry and America's big three auto manufacturers.

Though the membership of the Board of Directors changes every year with companies cycling on and off, over the last two years, ITSA's board members have included executives from General Motors, DaimlerChrysler, Ford Motor Company, and executives from the technology companies helping to develop the on-board units, including TransCore and Mark IV Industries. The board has also included federal transportation bureaucrats like Jeff Paniati, the Joint Program Office director. ITSA president and CEO Neil Schuster says the bulk of the group's \$6 million annual budget comes from its corporate members, money that ITSA then turns around and uses to lobby Congress and the federal government for further development of the INTI.

So why haven't you heard about ITSA or the INTI? Until recently, most of the groundwork necessary to lay the foundation for the system has been highly technical and decidedly unsexy. That's because before industry leaders and government officials could hold the first transceiver in their hands or bury it inside the first automobile, they had to create a uniform language for the system and convince the Federal Communications Commission to set aside enough bandwidth to contain the massive amount of data a constant conversation between cars, the road and the system would produce.

A half-decade later, with the computer standards 90 percent complete and the bandwidth set aside by the FCC, they're on the brink of a transportation revolution.

To most drivers, the above probably sounds pretty far-fetched. National databases to track our every move? A national network of government-controlled traffic management centers that use wireless technology for traffic surveillance by 2022? But the reality is that much of the technology and infrastructure needed to bring the system to life has already been put in place.

In the old days, if you turned on your windshield wipers, power just went to the wipers. But in the cars of today, a miniature self-contained computer system of sensors and actuators controls the wipers and just about everything else the car does. All that information winds up on something inside your car called a data bus.

"We have the ability to communicate essentially any of the vehicle information that's on that data bus, typically encompassing the state of about 200 sensors and actuators," said Dave Acton, an ITS consultant to General Motors. "Anything that's available on the bus is just content to the system, so you could send anything."

For automakers and tech companies, the databus is a goldmine of information that can be transmitted via imbedded cell phone or GPS technology. This year alone, 2 million cars in General Motors' fleet were equipped with the GPS technology that would enable customers to subscribe to OnStar-type services if they choose. Eventually, says Acton, all cars will likely be equipped with it.

But the same technology installed in GM's fleet is also capable of transmitting the car's location and speed to any government agency or corporate entity that wants it without the driver knowing, whether they subscribe to OnStar-type services or not.

Though government-run transportation centers across the country are not yet collecting the data, Acton predicts they will begin to within the next decade.

Ann Lorscheider agrees. She's the manager of the Metrolina Region Transportation Management center on Tipton Drive in Charlotte.

At the center off Statesville Avenue, traffic management specialists stare at dozens of television screens mounted on a massive wall, watching for accidents or anything out of the ordinary. From their workstations, they surveil 200 interstate miles, including I-77 from the South Carolina state line to US 901 in Iredell and I-85 from the state line into Cabarrus County.

When they need to, they can swivel the cameras mounted along the interstate or zoom in to get a better look at an accident. Sensors in the road constantly dump data back to the center on traffic patterns and speed. A system based on predictive algorithms tells them if a traffic pattern signals a potential problem.

The cameras and the sensors were installed by the state in 2000, at a cost of \$41 million. Traffic management centers like the one Lorscheider runs can now be found in just about every major to mid-sized city or region across the country, most constructed in over the last decade or so.

News reports show that over the last five years alone, there has been an explosion in the construction of these centers. During that time, over 100 such centers have opened across the country, part of a boom driven by the USDOT and its sub-agency, the Federal Highway Administration, which has secured funding to help bring the centers to life.

"They're booming," said Lorscheider. "They're all over the place now."

Everywhere they've opened, the centers have decreased response time to accidents and slashed, sometimes by as much as half, the number of law enforcement personnel needed to respond to accidents and get traffic moving again. Congestion and travel times have also improved.

This all sounds fine and safety-centered. But in the future envisioned by USDOT and ITSA in federal documents, the centers will be far more than a handy congestion management tool. They'll form the very hub of the INTI itself, interacting with regional and national traffic centers and, ultimately, with immense national databases run in partnership with the private sector that will cull data from vehicles, crunch and archive it.

To bring the INTI to life the way the government plans, the system will have to do far more than use GPS technology to transmit where cars have been and what they did along the way. Cars will need to swap information instantaneously with each other and with roadside readers at highway speeds in real time, something today's GPS technology can't do. To solve the problem, the federal government is pushing back the boundaries of wireless technology to create devices that can make the vision possible. Using something called Dedicated Short Range Communications, or DSRC, the transceivers the government is developing would allow cars to carry on simultaneous conversations with each other and with corresponding roadside units, sending messages or warnings throughout the transportation management system instantly.

These "conversations" could prevent collisions or stop drivers from running off the road, while giving transportation managers an instantaneous view of road and weather conditions. With a DSRC transceiver and GPS technology in every car, automakers believe they can wipe out nearly all automobile fatalities in the US. It's a goal they call the Zero Fatalities Vision.

"There is a basic consensus that we have to change the safety paradigm," said Chris Wilson, Vice President of ITS Strategy and Programs at DaimlerChrysler Research and Technology North America, Inc. "Everything we've done up until now -- airbags, seatbelts -- was to mitigate accidents once they occur. Now we're looking to prevent accidents. To do that we need live vehicle-to-vehicle communication and vehicle-to-vehicle infrastructure."

The tantalizing prospect of saving thousands of lives comes with a heavy price. The same technology that will allow cars to talk to each other in real time would also allow the government and ultimately private business to use the INTI to track every move American drivers make -- and profit from it.

This is the dark side of the information superhighway, the one executives and federal bureaucrats don't like to talk about. That's probably because they know it's entirely possible to use the technology the government is developing to prevent fatal collisions without harvesting information from automobiles and archiving it.

For all their talk about saving lives, there's ample evidence that the driving force behind the push to develop the national information superhighway is to profit from the data it collects. Both the corporations and the government -- including the more than 40 state departments of transportation that are members of ITSA -- stand to eventually rake in billions in revenues if they can bring the system to life. (See sidebar, "A Marketer's Dream.")

But first, they must find a way to harvest and archive the data.

That's where the ADUS, or Archived Data User Service, project comes in. For the last five years, while they were laying the foundation for the INTI, USDOT and ITSA have also begun setting standards for the massive databases that will collect and archive information.

According to federal documents, when it's completed, the brain of the INTI will essentially be a string of interconnected regional and national databases, swapping, processing and storing data on our travels it will collect from devices in our cars.

According to the "ITS Vision Statement" the Federal Highway Administration published in 2003, by 2022, each private "travel customer" will have their own "user profile" on the system that includes regular travel destinations, their route preferences, and any pay-for-service subscriptions they use.

Neil Schuster, president and CEO of ITSA, further clarified that goal in a recent interview with Creative Loafing.

"In fact, when we talk about this, the US government is talking about creating a national database, because where cars are has to go into a database," Schuster said.

Most INTI enthusiasts, like Schuster, insist that the lives potentially saved by this technology are worth giving up some privacy.

"When I get on an airplane everyone in the system knows where I am," said Schuster. "They know which tickets I bought. You could probably go back through United Airlines and find out everywhere I traveled in the last year. Do I worry about that? No. We've decided that airline safety is so important that we're going to put a transponder in every airplane and track it. We know the passenger list of every airplane and we're tracking these things so that planes don't crash into each other. Shouldn't we have that same sense of concern and urgency about road travel? The average number of fatalities each year from airplanes is less than 100. The average number of deaths on the highway is 42,000. I think we've got to enter the debate as to whether we're willing to change that in a substantial way and it may be that we have to allow something on our vehicles that makes our car safer. . . I wouldn't mind some of this information being available to make my roads safer so some idiot out there doesn't run into me."

Schuster insists that drivers shouldn't worry about the government storing information about their travels because personal identifying information would be stripped from it.

"They're not going to archive all of the data, they're going to archive the data they need," Schuster said. "They want origin, they want destination, they want what route that vehicle took. They don't want the personal information that goes with that because it's useless to them."

Schuster's words would be more reassuring if they didn't contradict planning documents authored by his organization and USDOT.

ITSA's own website on ADUS says data archived by INTI databases will include "vehicle and passenger data." So does the USDOT's Ten-Year-Plan. In fact, according to ITSA's own privacy principles, which are printed on its website, transportation systems will collect personal information, but only that information that's relevant for "intelligent transportation system" purposes.

"ITS, respectful of the individual's interest in privacy, will only collect information that contains individual identifiers that are needed for the ITS service functions," the site reads. "Furthermore, ITS information systems will include protocols that call for the purging of individual identifier information that is no longer needed to meet ITS needs."

In other words, identifying information will be purged when government and corporate users no longer have a need for it, not when it becomes a privacy issue for an individual driver.

Everyone Creative Loafing spoke to for this article, and every federal document we examined, insisted that safeguards would be put in place to protect this data. So far, though, no one has been able to specify exactly how these safeguards will work.

It's a problem Eric Skrum, Communications Director for the National Motorists Association, is familiar with.

"Information on this is awfully hard to get and it's also very conflicting, where one hand will be telling you one thing and the other will be saying oh no, we wouldn't possibly be doing that," Skrum said.

It's a problem Creative Loafing ran into as well. For instance, Schuster insists that the data the system will eventually collect won't be used to issue people speeding tickets or other traffic citations.

But according to ITSA's own privacy principles, the information won't be shared with law enforcement -- until states pass laws allowing it. In fact, the US Department of Justice and USDOT are already working on a plan to share the data ITS systems collect with law enforcement. It's called the USDOT/DOJ Joint Initiative For Intelligent Transportation & Public Safety Systems, and its aim is to coordinate the integration of the system with police and law enforcement systems by developing the software and technical language that will allow them to communicate.

After Sept. 11, ITSA and USDOT added a homeland security addendum to their 10-year plan. The system, through wireless surveillance and automated tracking of the users of our transportation system, could bolster Homeland Security efforts, it said.

Sensors deployed in vehicles and the infrastructure could "identify suspicious vehicles," "detect disruptions" and "detect threatening behavior" by drivers, according to the addendum. Those who take public transit wouldn't escape monitoring, either. The addendum suggests "developing systems for public transit tracking to monitor passenger behavior."

So who will control the information transmitted by the on-board units? That's still up in the air, too. Like the black boxes now installed in cars that record data before a crash that can later be used against the driver, it's possible that the on-board units will be installed in new cars before the legal issues surrounding the data they collect are fully resolved, says one industry insider.

Robert Kelly, a wireless communications legal expert who has acted as legal council to ITSA, says privacy law will have to evolve with the technology. In other words, privacy issues probably won't be resolved until the technology is already in place. Legislatures and Congress will have to guide how everyone from law enforcement to corporations use the data and exactly what information they have access to, Kelly said.

But again, with privacy organizations largely in the dark and the development of the system hurtling forward, the question is how much influence, if any, privacy advocates will be able to wield before these devices are installed on the first future fleet of cars.

That's part of what frustrates Skrum, the National Motorists Association communications director. "Because this is being done behind closed doors to a certain extent, the public isn't really going to have much to say about it," said Skrum.

The good news is that there's still time for the public to weigh in. It will take USDOT at least three more years of development and consumer testing before the first prototype "on-board unit" is ready. In the meantime, the federal government, automakers and the state departments of transportation will have to hash out a couple of billion-dollar details. So far, the government has borne nearly all the cost of developing the on-board units. But that will soon change. For the system to work, automakers must sign on to mass produce the on-board units and install them in cars, a move that will cost billions.

At the same time, the government must install the roadside readers to transmit the messages cars send, or the on-board units will be useless. So to bring the system to life, the government must spend millions, if not billions, on roadside units to communicate with cars at roughly the same time automakers begin installing the on-board units.

As Japan, Europe and foreign carmakers dash to develop similar technology, US automakers are under tremendous pressure. This is creating something of a chicken and egg situation. Given the nature of federal and state transportation budgets, the rollout of roadside units is likely to be gradual, starting at select trouble spots across the nation. But automakers say they need a mass deployment to make their effort worthwhile. They want to see a rollout of at least 400,000 roadside readers over about a three-year period.

A decision is currently slated for 2008, when automakers and the USDOT plan to come together to hash out a deployment strategy. At stake will be billions of dollars -- both in investments and profits. If the government and automakers can agree on a deployment plan, technology companies are expected to begin investing more heavily in the further development of programs the technology will enable.

ITSA projects that \$209 billion could be invested in intelligent transportation technology between now and the year 2011 -- with 80 percent of that investment coming from the private sector in the form of consumer products and services.

Jean-Claude Thill, a professor at the University of Buffalo who specializes in transportation and geographic information systems, says he believes the system will be deployed, just not as fast as car makers would like.

"It's not going to happen all at once," said Thill. "Look at cell phones. Right now in large urban areas you have a high density of cell towers so you have good coverage. If you venture on the interstate your signal gets weak and sometimes you lose it. You can't expect this to be different."

Thill says he believes the automobile manufacturers are playing hardball with the government to make sure the infrastructure is put in place quickly.

"I think the automobile manufacturers will do it," said Thill. "There is money in it. I think as the market develops in large urban areas, they will see that it is in their interest to get on the wagon. But nothing is going to happen until they are on board."

From the government's perspective, the good news is that a few sensors in a few cars and a little GPS technology can go a long way.

"Only a relatively small percentage of the approximately 260 million vehicles on US roads today need to be equipped with communication devices for the system to start producing useful data," said Bill Jones, the Technical Director of the USDOT's ITS Joint Project Office in a speech to the National Research Council's Transportation Research Board in January. "With 14 to 15 million new vehicles sold in the US each year, within two years you can have 10 percent of all

vehicles equipped. We already know from our previous studies that a vehicle probe saturation of less than 10 percent can provide good information."

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## Data Mining and Surveillance

[www.fromthewilderness.com/free/ww3/012605\\_watching\\_you.shtml](http://www.fromthewilderness.com/free/ww3/012605_watching_you.shtml)

They're Watching You (about data mining corporations versus personal privacy)

... We appear to be on the brink of a post-September 11 surveillance society. In one optimistic scenario, the U.S. is employing its full range of technical ingenuity to ferret out terrorists, using all the resources of the Digital Age and its quirky software geniuses. Meanwhile, dazzling new biometric identifiers -- iris scans, voiceprints, DNA registries, and facial recognition software -- are about to reduce identity theft to a quaint memory even while they shorten airport security lines and speed up credit approvals.

But in a less appealing second scenario, we could be on the verge of surrendering every detail about our private lives to an all-knowing Big Brother alliance of cops and mysterious private security corporations. They'll promise to protect us from terrorists. But along with that safety, we'll face arbitrary and unappealable decisions on who can fly in a commercial airliner, rent a truck, borrow money, or even stay out of jail.

That's the conundrum at the center of *No Place to Hide*, a finely balanced look at the see-saw struggle between security and privacy. Author Robert O'Harrow Jr., a Washington Post reporter, deftly shows how the government and its contractors have been lurching between these two goals ever since the September 11 terrorist attacks raised homeland security to the public's top priority.

The biggest threat and the biggest promise seem to lie not with official government databases but with the private companies that sell their information to all levels of government and to banks, airlines, credit-card companies, mortgage holders, car-rental agencies, and the like. ...

After September 11, it was only natural that these companies would volunteer their services in tracking terrorists. They had a head start in a critical technology: data mining. In practical terms, that involves cross-indexing every conceivable source of information -- unlisted telephone numbers, credit-card records, appliance warranty cards, insurance claims, arrest warrants, Social Security numbers, child custody orders, book purchases, E-ZPass records -- to compile a list of suspects or even possible terrorists that need to be placed on the Homeland Security Dept.'s "no fly" list.....

[www.theage.com.au/news/technology/how-they-keep-track-of-our-every-move/2006/02/03/1138836402623.html?page=fullpage#contentSwap2](http://www.theage.com.au/news/technology/how-they-keep-track-of-our-every-move/2006/02/03/1138836402623.html?page=fullpage#contentSwap2)

Eyes on the road

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Speed cameras, red-light cameras, e-tags. Innocuous technology to make the roads safer and our journey simpler ... or a series of "Little Brothers" keeping track of our every move? Nikki Barrowclough looks behind the boom in traffic monitoring.

Eight years ago, on the night that a Saudi diplomat was brutally murdered in his Canberra apartment, a car was filmed travelling south along the Hume Highway towards the national capital. Then, a few hours later, it was filmed heading north back towards Sydney.

The car wasn't being tailed by the Australian authorities, the Saudis or anyone else. The "spy" was a humble traffic camera, although this emerged only after four people were arrested and brought to trial over the diplomat's violent death. The fact that the camera had been set up to

monitor speeding and unregistered trucks didn't cause a ripple. The candid Safe-T-Cam had, in fact, filmed every vehicle travelling along that stretch of the Hume. So when the diplomat's ex-lover insisted to police that she and her new boyfriend had been in Sydney at the time of the crime, the authorities had only to look at an image of her car fleeing back up the highway to know that she was lying.

Few people would be troubled by the use of traffic cameras to locate criminal suspects. But the Canberra incident highlights how the mass surveillance of motorists, far from being an Orwellian conspiracy theory, is now routinely practised and growing more pervasive by the year. In Australia and other major Western countries, traffic is increasingly monitored with the sort of sophisticated technology that makes the image of a shadowy figure watching through binoculars seem impossibly quaint. Whether we're appearing in "real time" on one of the hundreds of traffic cameras operated by central command centres in Melbourne and Sydney, being "flashed" on a speed or red-light camera operated by the police, or clocked on a toll road with our seemingly innocent e-tags, it's almost impossible to drive anywhere without being monitored and/or leaving an electronic data trail.

It's even getting harder to disappear on obscure back roads thanks to GPS - the US military-developed global positioning system whose satellite tracking can pinpoint a car's location to within a few metres. A group of Stanford University academics in the US are reportedly working on satellite navigation systems so accurate they will be able to tell authorities whether you're in your car or standing next to it. This is revolutionary technology, and great if you get lost or have an accident or your car is stolen. But there's a chilling aspect to it all as well - namely, the loss of individual privacy.

Two years ago, the Office of the Victorian Privacy Commissioner devoted an entire edition of its newsletter, *Privacy Aware*, to just one subject: "Privacy and the Car". It included a brief section on telematics, the term used to describe the combining of satellite GPS, in-car computers and mobile phone technologies. "Telematics raises concerns because, while GPS receivers cannot send data back to a central location, mobile phones can. Used together, they turn the vehicles they're embedded in into very powerful tracking and monitoring devices," the report declared.

How much covert monitoring goes on in tandem with open surveillance, such as speed cameras, is anyone's guess, because that's not the sort of information governments readily disclose. Professor Roger Clarke, a Canberra consultant in data surveillance and information privacy, regards the Hume Highway incident as an example of "function creep" - when technology, set up for one purpose, secretly ends up serving another purpose as well. And function creep, he says, is a way in which the "surveillance society" has sneaked under the public's guard.

"The social and political commentators have missed it, but what's more worrying is that young people have grown up with surveillance and have a different attitude to it," Clarke says. "They think life's like that."

Governments and transport authorities insist that such surveillance systems are totally benign. They are about road safety, keeping people alive, and managing increasing volumes of traffic more efficiently, they say. This isn't just soothing rhetoric - with around 1600 deaths on Australian roads last year alone, road safety is a huge issue - but at the same time we seem to have ceded our civil rights as motorists.

Cameron Murphy, president of the NSW Council for Civil Liberties, does not doubt that surveillance technology is about much more than simple traffic management.

"Most people are aware that speed cameras and red-light cameras are obviously there for infringement purposes," Murphy says. "But we are also aware that there's an extensive network



of cameras that can track people from one end of the city to the other, along freeways and on main arterial roads.

"You should be able to go from A to B without the government monitoring you. If the prime motive is traffic management alone, then you don't have to survey one end of the freeway to the other - it doesn't add up. That's when it becomes an invasion of privacy ... Recording where people go, what time of day they travel. If there aren't appropriate controls, the data could be used for commercial purposes or by any other government agency."

Given the fear of terrorism and the heightened national security alert, the potential of some of the new "smart road" technologies is obvious. For instance, British firm Hills Numberplates has already devised so-called e-Plates, numberplates embedded with radio frequency identification (RFID) tags. These tags act as tracking devices that transmit a unique, encrypted ID code via silicon chips that cannot be seen or removed. Known as a silent technology, RFID is sometimes described as a sophisticated barcode because it can identify and track goods from a distance.

Hills Numberplates claims a single "reader" positioned at the roadside can identify dozens of vehicles fitted with an e-Plate, moving at any speed, at a distance of up to 100 metres. But will they catch on here? VicRoads has no plans to bring in e-Plates. However, the NSW Roads & Traffic Authority says they have certainly been up for discussion - though as yet there's no decision to introduce them.

"But as with everything of this nature, it's a case of watch this space," a spokesman says.

Transport authorities are also keeping an open mind about an electronic version of the vehicle identification number (VIN) that comes with every car. A Department of Transport and Regional Services spokesperson in Canberra says that while there are no plans "at this point in time" for an electronic VIN, that doesn't mean it won't happen.

Melbourne-based academic Professor Marcus Wigan, an adviser to the US Department of Transport, is also the Australian Privacy Foundation's spokesman on intelligent transport systems. He says e-VINs (which would transmit to a central location as cars pass specific points) are simply a more efficient way of managing the many regulatory aspects of the identity of vehicles. An e-VIN would certainly decimate the stolen car trade, but it would also obviously increase the ability of authorities to track cars and monitor daily travel routines.

The expression "intelligent transport systems" (ITS) is a catch-all phrase for the in-car electronics, smarter roads, satellite navigation technology, tolling systems and remote road monitoring being employed increasingly throughout the world - sometimes without limit.

Last September, as Hurricane Rita bore down on Texas, and hundreds of thousands of motorists fleeing the Houston area became trapped in a 200-kilometre traffic jam in which cars were abandoned and people collapsed from heat exhaustion, officers from the state's highway system were reportedly scanning e-tags to make sure evacuees had paid their tolls.

Meanwhile, London's Independent newspaper reported late last month that the United Kingdom was about to become the first country in the world where all motorists would be monitored by a vast network of cameras that would read the licence plates of every passing car. Neither the Home Office nor the British police denied the story, or the paper's claim that the ultimate plan was to build a huge database of vehicle movements so that police and security services could analyse the journeys of individual drivers.

And in the US, the Washington-based Intelligent Transportation Systems Joint Program Office - a powerful, 500-strong group of car manufacturers, technology companies and government interests - has reportedly spent more than \$4 billion and almost 15 years developing a system of tracking and sensor technology that would collect data on the movements of every driver and public transport user. The stated aim of this system, known as the Integrated Network of Transportation Information, is to reduce the 40,000 or so annual road deaths in America by

allowing government agencies to intervene directly between drivers, their cars and the road. And authorities want to have it in place within the next decade.

Whether or not they were designed for such purposes, what intelligent transport systems do is identify specific vehicles - and, therefore, their drivers.

The term first cropped up in Australia about 15 years ago. In 1992, an organisation called Intelligent Transport Systems Australia was set up in Melbourne, and today its membership base includes government, scientific, academic and car manufacturing groups. The group's executive director, Brent Stafford, says he expects that all new vehicles will be equipped with satellite navigation and telematics by 2010. And while he says he understands people's unease about such technologies, he can't see why such systems would be used to track Australians en masse, as seems to be the intent in Britain.

"It's quite easy to track the movements of every vehicle, but you'd have to ask, 'What for?'" says Stafford. "You'd also have to consider how much it would cost. ITS is the application of technology to transport. It's not the application of technology to security. The fact is, there'll be lots of Little Brothers looking after you, but no Big Brother spying on you."

Lachlan McIntosh, chief executive of the Australian Automobile Association, shares Stafford's view. "Why would you want to track everybody? And what would you do with all that data?" he asks.

When Good Weekend suggests to him that, given the uncertain times we live in, such surveillance options could be very attractive to government departments, he replies: "In France during World War II, everyone was tracked and monitored without these technologies.

I think surveillance comes and goes in society ... If there's a political will to monitor what everybody does, then it's likely to happen.

"In the end, there are a lot of benefits in monitoring where you are: the emergency response if you are to have an accident, for instance ... If, as you say, this will happen, and everyone had a monitoring device in their car that said they just had an accident, we may well save 100 or 200 lives a year. Okay, you may well have been going to Cronulla when you shouldn't have been, or maybe you had an unfortunate crash and nearly died, but you were saved because of the device. There are trade-offs in those discussions, and we often forget the benefits when we talk about the downside."

There are also advantages in being able to keep an eye on hazardous cargo or large sums of money, he adds. "We all want to know that if a cargo of ammonium nitrate goes missing, it can be tracked and found. Is that an intrusive activity on the driver of the truck? Well, maybe it is, but it's a security mechanism as well. Now, should you want to put surveillance on a particular car for some criminal activity, I imagine you would need a warrant and you would have to go to a magistrate to obtain it. So I would think Australians would want to ensure that they are protected through our court system against the undue use of surveillance."

People have to be informed about the benefits of the new technology, what the implications are and what the risks are, he adds. "As long as we have that sort of reasonably informed debate in Australia, I think we're likely to want to adopt the latest technology."

But is there debate? Dr Peter Chen, a political scientist who lectures in communications at the National Centre for Australian Studies at Monash University, says Australians tend to be relatively passive when it comes to such matters.

"While we like to tell ourselves that we have a healthy disregard for government, it's total fiction. We're very accepting of increased state security and surveillance for whatever reason," Chen believes. And when governments talk up safety as a way of getting more surveillance systems under the wire without causing public alarm, we generally accept official reasoning.

"That's the argument that's always used," says Chen. "No government ever says we're introducing wide-scale surveillance for anything but notions of public safety, and while the paranoid concerns of some people are somewhat overstated, systematic surveillance technologies are very compelling tools for governments of all persuasions, and tend to inevitably lead to the expansion of their use into other areas of public policy."

Remote surveillance, like static cameras and portable speed cameras, is cheap, too; much cheaper than human surveillance. "This was a key argument in the government's support for electronic tagging of terrorist suspects late last year: surveillance technologies are cheaper than policing," he says.

Police in NSW recently began using high-tech scanning units that employ automatic numberplate recognition (ANPR) technology to "read" the registration of passing vehicles and check them against an RTA database, as a way of detecting stolen and unregistered vehicles. Victoria Police trialled the technology, too, but has opted instead for mobile data terminals linked to the main police computer system, from which police can also access the VicRoads registration database. Seven hundred of these terminals are now being fitted to police cars, motorbikes, boats and helicopters by the Victorian Department of Justice.

Paul Chadwick, the Victorian Privacy Commissioner, wrote about ANPR technology during the trial. The systems, he pointed out, can be linked to existing surveillance camera systems, "so multiplying the 'eyes' of the State, and can be linked to a variety of databases, so expanding the State's 'memory'".

Meanwhile, the ordinary motorist, blithely driving across town or to a lunch in the country, should think twice about e-tags - those small, wireless electronic transponders attached to the windscreen that collect information about a car's movements and charge the owner a toll.

The e-tag revolution kicked off in Melbourne in 2000 with the opening of the privately operated, 22-kilometre CityLink, one of the world's first automated, fully electronic toll roads. In Sydney, both the controversial Cross City Tunnel and the recently opened Westlink M7 are also fully automated. This means that toll-road operators, whether they're government or private companies, can collect personal information such as your vehicle registration, driver's licence number, credit card details, name and address and your pattern of travel.

And that's a concern to lawyer Anna Johnston, a former NSW deputy privacy commissioner who's now the chair of the Australian Privacy Foundation. As she notes, drivers on these toll roads now have no choice but to identify themselves every time they use them. "I don't want to indulge in conspiracy theories, or say that we have reached that 'Big Brother' point," she says, "but there is a danger we are sleepwalking into a situation where more and more of our information can be logged, tracked, profiled and matched in ways that haven't really been contemplated in the past. That may not be the intention at the time a new technology is introduced - but of course with each new technology, with each new chipping-away at our privacy, it makes the next step so much easier."

Johnston's foundation campaigned against a law passed in NSW last May, which allows the RTA to issue photo identity cards to non-drivers over 16 years of age (VicRoads has no plans to introduce the voluntary scheme).

"We weren't against the concept of a photo ID card for non-drivers - there's a need for it, clearly - but we suggested an alternative way to develop it, so that it didn't result in one database being held by one agency covering the entire population, whose details get printed on a card which is both unique and universal. All that, of course, is like a national ID card, which Australians rejected in 1987."

The bill didn't limit the type of information that could be collected and stored, Johnston says, and the legislation specifically allowed the RTA to put the two databases (driver and non-driver) together. She's concerned the latter will eventually happen.

However, both the RTA and a spokesman for the NSW Roads Minister, Joe Tripodi, assured Good Weekend that the photocard database would be kept separate from other databases within the authority, and that there would be separate databases for drivers and non-drivers. In a statement, the RTA also said that databases kept on NSW motorists are not integrated, for privacy reasons, and that access to one database doesn't automatically mean access to another.

The inevitability of more privately run, cashless toll roads, and a more widespread user-pays road system means there'll be more databases and more information stored on motorists. Privacy laws protect access to all databases, although privacy advocates tend to be lukewarm about their effectiveness.

"You get principles that sound great in theory, like, 'This information should only be used for the purpose for which it's collected, or with your consent', and people say, 'Oh good'," says Nigel Waters of the Australian Privacy Foundation. "Then you look at the fine print where it says, 'Except in emergencies, for law enforcement and a whole raft of other exemptions.'"

But the acting Privacy Commissioner for NSW, John Dickie, argues the Privacy Act is not without teeth. "Government departments and agencies are subject to it. People can't just wander off and get around things - [though] if there is a serious crime, all bets are off," he says.

Four years ago, a former employee of Transurban, the company that operates CityLink, admitted in court that he had passed on the credit-card details of more than 8000 CityLink customers to cyber thieves, who then used them for an internet spending spree. A subsequent review of Transurban's information handling practices by the Office of the Federal Privacy Commissioner found Transurban needed to take steps to reduce the risk of further privacy breaches. The FPC won't detail what those measures involved.

A spokesman says there were no fundamental problems and that Transurban merely needed to "enhance" existing systems.

Meanwhile, Transurban has told Good Weekend that it takes the protection of personal information seriously, and that the manner in which it manages the use and disclosure of personal information goes beyond obligations imposed by state and federal privacy legislation. The information it collects on its database is used only for collecting tolls and enforcing toll collection, isn't available to other organisations, and is only made available to police or to an authorised government body once there's a properly authorised written request.

It's not just toll-road operators who are amassing huge amounts of data on private citizens. In what could almost be called privatised intelligence gathering, the outsourcing of traffic management systems to private-sector organisations means more databases still. One such organisation is Tenix, the contractor employed by Victoria Police to operate its speed cameras - and which wrongly fined more than 100 motorists last July after the wrong speed limit was entered into the machine by an operator.

"I guess if there's a concern about the private-sector organisations holding increasing amounts of data, it's, 'Where are they holding it, how secure is it, and what purpose are they putting it to?'" says Monash's Peter Chen, who believes we will soon be talking about "data laundering" the way we now talk about money laundering. "I think it's safe to say that governments around the world, not just in Australia, have been lousy at regulating the movement of data about members of the public held by private-sector organisations.

"We have privacy laws which are relatively tight, but ... if you put a large chunk of the general surveillance system data into private hands, the company that picks up that contract will undertake that work in the most effective and efficient way for their profitability. And that might

mean warehousing and processing data offshore, outside the legal jurisdiction of Australian governments. If I were a car company, I'd be very interested in finding out about the sort of people who drive a lot, who they are, what are their characteristics. If that information was held in a country with

poor data security legal provisions, then data could be sold, resold or 'stolen'. That's not a conspiracy theory view. It happens all the time. Large amounts of data get 'lost' in transit every year around the world."

Marcus Wigan points out that no one "owns" the information stored about them - so there's very little redress for consumers if their data is misused. "There's no such thing as intellectual property when it comes to information about you," he says. Nevertheless, he cautions against paranoia over intelligent transport systems, even though he has his own concerns about the data building up as a result of new technologies.

"The rules we have to manage that information are reasonably good, but not so good as to handle a situation of future cross-linkages between all those databases," he says. "So if we have [someone's] entire historical records on a range of individual databases, and at some point, for administrative convenience, a link is drawn between them, then the result is a complete history of locations, times, events of many different kinds that suddenly becomes available as a single resource. That's a quantum leap.

"Your vehicle will have had its numberplate [photographed] various times, your e-tag will have been caught - you only have to have one identification token transferred between two or more agencies for an amazing degree of record linkage with other sources of information about you and your activities over a considerable period.

"The ability to manage this is improving incredibly quickly. Once this is achieved and it's a few years away yet - we suddenly get a retrospective loss of privacy of an enormous order [and] ITS systems become surveillance systems.

"I'm not saying they'll be used in that way," Wigan adds. "I'm saying the potential for that to occur ... would then become a low-cost, low-effort issue. We need to use the time until all this is in place to educate and earn the trust of the community to secure the very real benefits of intelligent transport systems."

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