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**Future Federal Role for Surface Transportation**

**Senate Environment and Public Works Committee**

**June 25, 2008**

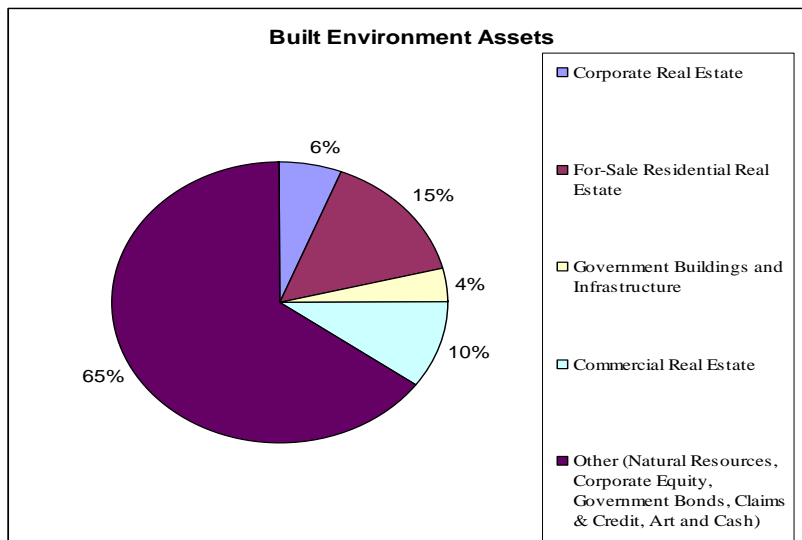
Highlights

- The federal role in transportation has been substantial, particularly in the last half-century. This helped to shape the country's development patterns and transportation options in ways that are beneficial but also increasingly costly.
- The next fifty years are likely to be different, for at least three reasons: A radical demographic shift with growth in demand for development and transportation alternatives, growing concern over oil security, and the inevitable and urgent need to constrain carbon dioxide emissions.
- There needs to be a strong federal role to help shape the future (as it helped shape the past), which should at least include five components:
  - Strategic investments in high-performance system improvements which are judged based on:
    - Performance measures;
    - Prioritization of repair of the existing system;
    - Development of a strategy to address growing freight traffic; and
    - Provision of more travel choices by a rail system to complement the highway system.
  - Empowerment of local governments, which is where most people and economic activity are located and which tend to invest in environmentally beneficial transit projects, by providing a greater percentage of federal funding directly to metropolitan regions;
  - Incentives for local governments to reform development rules, unleashing more choices for consumers in the marketplace for real estate;

- Removal of barriers as well as new incentives for adopting innovative revenue-generation programs which also send salutary price signals, saving energy and reducing pollution; and
- Robust linkages with federal climate policy.

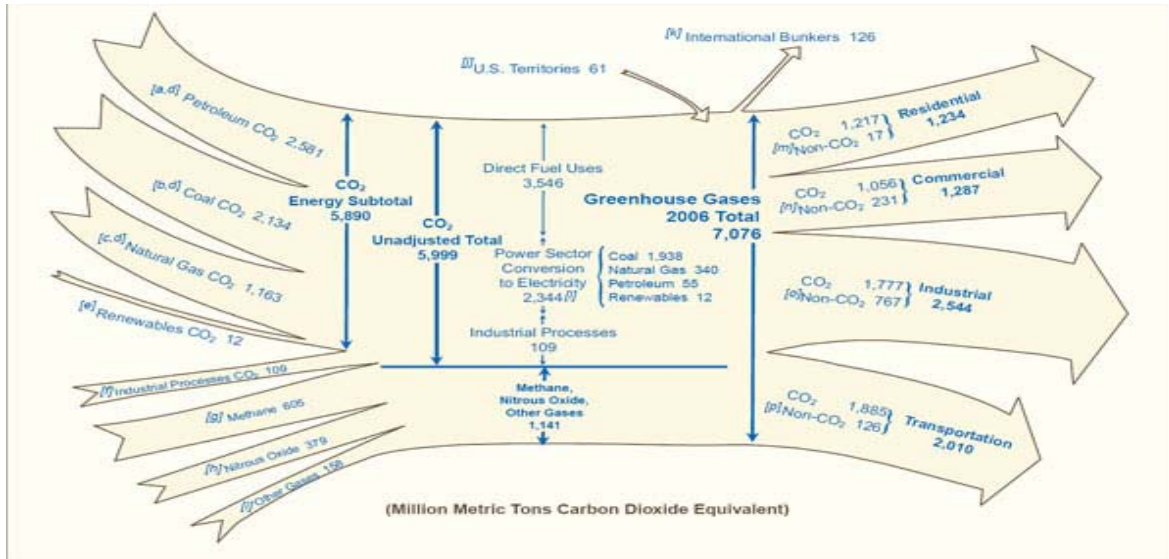
The Federal Role of the Past Half-Century

Surveying a map of the United States at night, glittering lights line the coasts and light up settlements scattered throughout the landscape in between. This is striking visual evidence of the footprint of human-made structures, which also makes up more of our economy than many realize: 35 percent of the nation’s assets are in the built environment.<sup>1</sup>



The National Interstate and Defense Highways Act of 1956 (P.L. 84-627) helped pave the way for this goliath, and along with it a half-century of economic prosperity. Cities and towns were connected, facilitating trade in goods and services. Settlements grew at the intersections of highways and interstates. Baby boomers grew up in maturing cities and new suburbs that spread ever further from central business districts. The American Dream was defined as a single-family detached house with a yard in the suburbs.

Of course, there were downsides. Farmland and open space fell victim to the bulldozer. Social capital took a hit as “third places” -- those gathering spots like coffee shops and diners outside of our work and home worlds – were few and far between in the far-flung suburbia. And a new source of pollution – a massive fleet of private cars and trucks— grew along with suburban sprawl. Stormwater runoff carried pollutants into lakes and streams, and tailpipes belched carbon monoxide, pollutants that fed smog, and soot into the air. Global warming pollution also increased, as carbon dioxide (CO2) concentrations increased and the transportation sector grew to account for the lion’s share of U.S. petroleum consumption and more than 28 percent of CO2 emissions, second only to industry as a source of heat-trapping pollution (see graph below<sup>2</sup>).



The growth in carbon dioxide emissions is roughly the product of three factors:

**Per-Mile Vehicle Fuel Use**

**X**

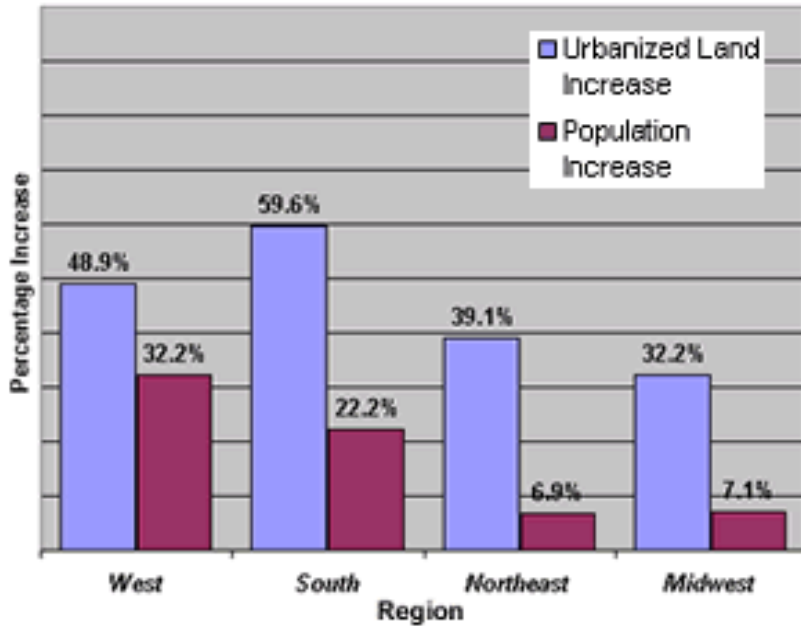
**Energy Carbon Intensity**

**X**

**Vehicle Miles Traveled (VMT)**

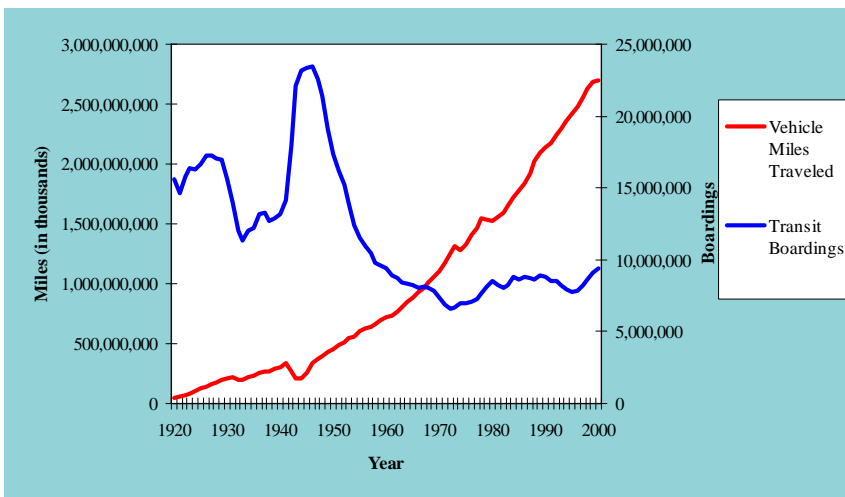
The last of these factors is driven in part by the increase in car-dependent suburban development patterns that dominated growth in the last fifty years. Growth in such settlements vastly outpaced that in central cities in all regions of the country.<sup>3</sup> And the rate of land development accelerated in the last two decades of the twentieth century, as shown in the graph below.<sup>4</sup> Real estate expert Chris Leinberger has studied Department of Agriculture data and claims that this trend has picked up more speed since then: “For every one percent population growth in the 1990s and early 2000s, land use grew by probably ten to twenty percent, even faster geometric land use consumption than in the 1970s and 1980s.”<sup>5</sup>

Population vs. Urbanized Land Growth, 1982-1997



Adapted with permission from Fulton, William, et al., "Who Sprawls Most? How Growth Patterns Differ Across the U.S.," Center for Urban and Metropolitan Policy, The Brookings Institution, July 2001.

Transportation was transformed too, with vehicle miles traveled increasing rapidly while transit boardings plummeted. The growth was relentless for the last fifty years, averaging 2-3 percent annually without fail as shown in the graph below, which contrasts the growth in VMT with transit boardings using data from the Federal Highway Administration and the American Public Transportation Association. VMT has been closing in on the three trillion miles a year mark, more than any other industrialized nation and indeed enough to make more than 10,000 round trips to the planet Mars.



Since 1956, the Federal role in providing the infrastructure that supports this ever-increasing driving has been robust, so that it now provides about one-fifth of the financing for construction, operation and maintenance of highways, transit and other

facilities. While the large land mass accommodates this development with ease, with highways, streets and affiliated rights-of-way technically taking up just one percent of the U.S., its environmental footprint is much larger. One estimate finds that the system affects one-fifth of the country, degrading and fragmenting habitat, harming water quality and spewing pollution into the air.<sup>6</sup>

### We Can't Grow On Like This

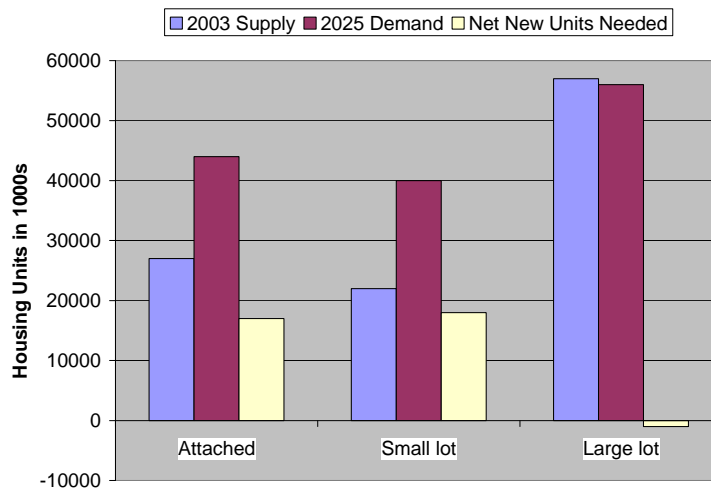
The next fifty years are bound to look very different from the last fifty years. Three drivers are pushing more development choices into the marketplace, beyond the homogenous suburban product lines mastered by developers and planners.

### *The Coming Radical Demographic Shift*

First: Demographics are destiny. The United States will grow dramatically in the next few decades, and demographically this growth will pose challenges to the development industry for two reasons: The aging of the boomers and the decrease in the size of the average household. For example, as Professor Chris Nelson of Virginia Tech has documented, the number of people turning 65 will increase yearly and then jump so that from 2012-2025 the ranks of senior citizens will grow by about 1.5 million people annually. And while in 1960 almost half of households had children, only a third did in 2000 and that number is projected to keep dropping.<sup>7</sup>

There will be implications for the housing market, based on consumer preferences:

2003 Housing Supply vs. 2025 Housing Demand (Nelson 2006)



In fact, some recent analyses find that there is already a mismatch between what the marketplace provides and consumer preferences. One analysis looked at Atlanta households and found that “the segment of the housing market that is interested in these alternatives is underserved—that is, there is unmet demand for alternative development in the Atlanta region.”<sup>8</sup> Another analysis compared Boston and Atlanta, finding that 70% of

Bostonians who wanted to live in a walkable suburb actually did while only 35% of the same in Atlanta did.<sup>9</sup>

Another compelling piece of evidence of unmet demand for alternatives to sprawl-type development is a recent national survey of developers, which found that more than 60% agreed with the statement “In my region there is currently enough market interest to support significant expansion of these alternative developments,” with a high of 70% in the Midwest and a low of 40% in the South Central region. In terms of location within metropolitan regions (central city, inner suburb, outer suburb, or rural) the highest percentage (80%) reported an intent to develop more densely should land-use regulations be relaxed in inner suburbs.<sup>10</sup>

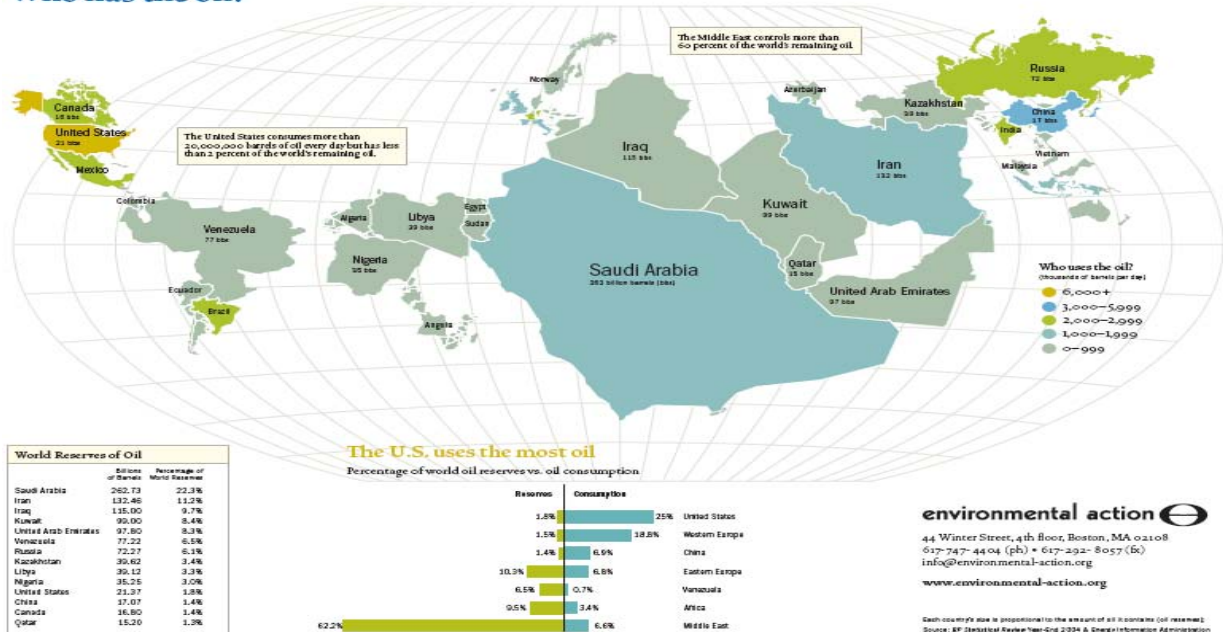
### Oil Security

America’s economic engine runs on oil. This is especially true for transportation, which forms the backbone of our economy and is responsible for two-thirds of total U.S. oil demand. Passenger cars and light trucks alone account for nearly half of total U.S. oil consumption.

Our overreliance on this resource is taking a huge toll on the economy. The U.S. is paying \$625 million a day for imports, which means we are in the midst of the largest transfer of wealth in history.<sup>11</sup> Oil imports make up more than half of our trade deficit, putting pressure on the dollar.<sup>12</sup>

Due to our “oil addiction,” as the President has rightly termed it, we have painted ourselves into a corner. The map below, courtesy of Environmental Action, underscores the inescapable fact that we are endowed with a mere two percent of global reserves of this resource yet we account for 25 percent of world demand.

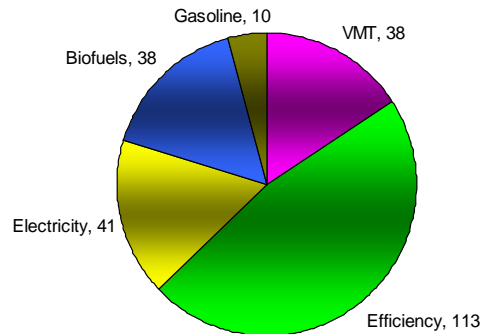
### Who has the oil?



Two-thirds of the reserves lie under the sands of the Middle East, and increasing imports from states outside of this unstable region is a risky, short-term solution at best. The total projected reserves of these alternative oil suppliers are 198 billion barrels—70 percent lower than reserves in the Middle East. More importantly, the average reserve to production ratio of these alternative oil suppliers is just 18 years. In comparison, the Middle East has almost 100 years of proven reserves. By depleting reserves outside the Middle East, we create a more severe dependence on imports from the Middle East in the future. As a former Energy Secretary put it, “We should not deceive ourselves, as long as we are dependent on oil to the degree that we are, that there is a substitute for the Middle East [as a source for oil]...Over time, non-OPEC oil will be depleted and we will become more dependent on oil from the Middle East.”<sup>13</sup>

The best way to attack our overdependence is to drive down the oil intensity of our economy generally and our transportation sector specifically. The potential to reduce demand for oil is greater in surface transportation, by demand-side reductions achieved via higher vehicle efficiency and reduced car traffic (shifting to alternatives such as rail transit) as well as substitutes such as biofuels and electricity (i.e., plug-in hybrid electric vehicles). In fact, NRDC projects that if we addressed this challenge aggressively we could virtually eliminate gasoline use by 2050 as shown in the scenario below.

Displacing 240 Billion Gallons of Gasoline Demand in 2050



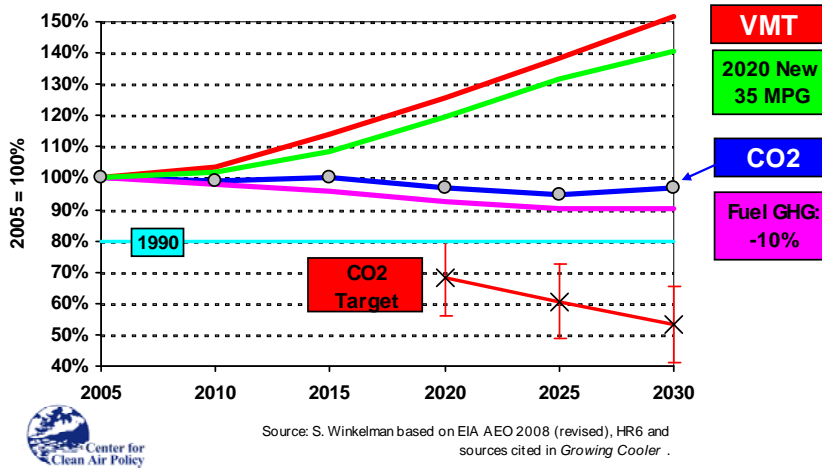
### *Carbon Constraints*

This Committee is better aware than most of the challenge that climate change poses to the United States. A host of likely harmful effects are in store for the country and the globe if we don't scale up federal policy to address growing carbon dioxide concentrations. I commend this Congress for enacting the Energy Independence and Security Act of 2007 (EISA, P.L. 110-140) which will provide substantial reductions in carbon dioxide emissions.

However, these reductions are projected to be undercut by increases in VMT. Steve Winkelman of the Center for Clean Air Policy graphed out the transportation emission reductions due to EISA, compared to reductions as part of a trajectory to 2030, consistent



with a cut of 80 percent below 1990 levels by 2050, layering on VMT at the top. Runaway traffic growth could well undermine technological efforts to de-carbonize transportation. Federal policy can and must help avoid this outcome.



### The Necessity of a Strong Federal Role

The timing of the next transportation bill reauthorization is such that fundamental reform is not optional. Our transportation infrastructure investments over the next decades will either support or thwart efforts to address the intertwined challenges of historic demographic changes, dangerous oil addiction, and global warming. This is why I urge Congress to think big. Bigger than the landmark Intermodal Surface Transportation Efficiency Act of 1991 (P.L. 102-240, known as ISTEA). We need a visionary strategy, scaled up to the challenges, akin in boldness to the 1956 highway bill.

This bill must set a course for transformation of the transportation sector, decarbonizing it, making it dramatically less oil-intensive, and undergirding a new array of development types that are a better fit for the 21<sup>st</sup>-century marketplace.

One place to look for inspiration is the United Kingdom. Most people are quite familiar with the Stern Review, but few realize that another momentous assessment was unveiled by Sir Rod Eddington, in 2006. It laid out a bold strategy for transportation, with three key strategic economic priorities: Congested and growing city catchments, key interurban corridors and key international gateways.<sup>14</sup> His rationale for targeting resources in this way is instructive for the U.S. since our metropolitan areas and ports face similar challenges: “Government should focus on these areas because they are heavily used, of growing economic importance, and showing signs of congestion and unreliability – and these problems are set to get significantly worse. They are the places where transport constraints have significant potential to hold back economic growth.”<sup>15</sup> He further suggests a methodical approach to transportation policy, something that should also be of interest here, noting that “The policy process needs to be rigorous and systematic: start with the three strategic economic priorities, define the problems, consider the full range of modal options using appraisal techniques that include full environmental and social costs and benefits, and ensure that spending is focused on the best policies.”<sup>16</sup>



This is exactly right. And in order to meet the big challenges facing the nation at the requisite scale, the next bill must have at least these components: Strategic federal investment, empowerment of local governments, incentives for development rule reform to provide more consumer choices, innovative revenue-generation and price signals, and linkages between transportation and climate policy.

### Strategic Federal Investment

Federal transportation policy is bogged down in parochial politics. This became clear to the general public with the controversial “bridge to nowhere” project included in the last transportation bill. Of course, that was just one of thousands of earmarks included in the bill. This unfocused use of substantial federal resources undermines the ability of administrative agencies and states to implement a strategy for transportation that would help make the nation more competitive, secure, and environmentally responsible.

As Secretary Mary Peters pointed out in a recent speech to the nation’s governors:

In a September 2007 report by the DOT Inspector General, a review was done of 8,065 earmarked projects within the Department’s programs that received more than \$8.54 billion for FY 2006. 99% of the earmarks studied “either were not subject to the agencies’ review and selection process or bypassed the states’ normal planning and programming processes.”<sup>17</sup>

I agree that the Secretary that earmarks should be abolished. I also agree that earmarks are merely one symptom of the larger problem summed up by the National Transportation Policy Project (NTPP): “...it is fair to say that U.S. transportation policy has increasingly devolved into a fight over a large pot of money with little or no regard for cost-benefit considerations or performance objectives.”<sup>18</sup>

### *Making Performance Matter*

Instead of such piecemeal decision-making, Congress must establish a vision for the national system based on a set of performance metrics and outcomes. These include:

- Reductions in heat-trapping emissions proportional to the contribution to an economywide climate stabilization strategy needed from transportation;
- Increases in oil savings due to better traffic management, reductions in traffic and accessibility to fuel-efficient transportation modes;
- Increases in the percentage of consumers and communities with easy access to more travel choices such as rail, bus and bicycle;
- Minimization of the overall environmental footprint of new and existing
- Increases in the number of roadways, bridges and transit lines in a state of good repair;
- Contributions to economic competitiveness and improved regional equity;

- Reduction in number of injuries and fatalities relative to number of people traveling in each mode (auto, transit, bicycle, pedestrian).

While regional and state plans should be held accountable for achieving progress in these ways, there must also be a national strategy for moving forward.

One model for development of such a strategy was proposed by the National Surface Transportation Policy and Revenue Study Commission (Revenue Commission), which would set up a National Surface Transportation Commission (NASTRAC) to oversee development of performance measurements by U.S. DOT. However, as NTPP pointed out, “This idea seems to put the federal government in charge of approving every major transportation project in the U.S., which would be a cumbersome and potentially faulty process given the unique nature of many parts of the country.”<sup>19</sup>

Robert Puentes of the Brookings Institution has a better idea. He would create a Strategic Transportation Investments Commission (STIC), which would have a more limited purview than NASTRAC. Specifically, STIC would develop a map of the United States which leverages federal resources in a targeted way to achieve three goals:

1. Preservation and maintenance of the Interstate Highway System;
2. Development of a national intermodal freight agenda; and
3. Development of a comprehensive plan for inter-metro area passenger travel.

It seems to me that this is an appropriate list, and with the overlay of the performance goals listed above it is the type of policy architecture that Congress should establish in the next bill to best target the allocation of scarce federal dollars.

#### *Fixing-It-First: Repairing Existing Infrastructure*

The first goal could fruitfully be applied to the entire transportation system, which is showing its age. The American Society of Civil Engineers issued a report card on America’s infrastructure in 2005, giving grades for transportation ranging from a mediocre C for bridges to a pathetic D for roads.<sup>20</sup> The U.S. DOT estimates that less than half of the nation’s roadways (except rural and local) are in good condition and that fifteen percent are in *unacceptable* condition.<sup>21</sup> And according to a presentation before the Revenue Commission, transit infrastructure conditions lie generally between “good” and “adequate” with the notable exception of our bus fleet which is deemed “moderately defective.”<sup>22</sup>

Or, to quote Sir Eddington again: “Any sensible business would ensure that existing assets perform properly before embarking on new speculative investments: the guardians of the transport system should follow this lead.”<sup>23</sup>

#### *Developing A Freight Traffic Strategy*

Freight poses a huge challenge to the nation's environment and oil security. It is a growing part of the economy, moving more than \$6 trillion in goods, accounting for roughly 11 percent of GDP and employing about 13 million people directly and indirectly.<sup>24</sup> John Vickerman, an expert with the company Transystems, puts it bluntly:

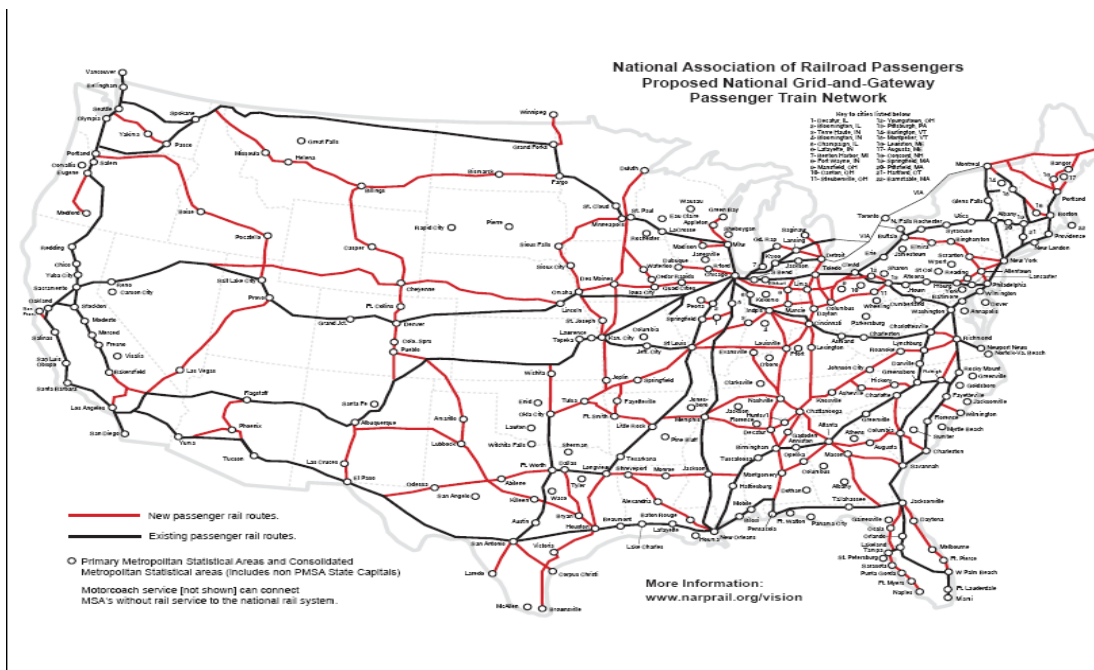
The problem...is that the nation is dealing with a paradox. The demand for cargo is high, but we live in a time when we face diminished resources and have no true vision – public or private – for how to move forward with needed goods movement investments.<sup>25</sup>

As global trade expands, lack of a national strategy puts growth and prosperity at risk. For example, a recent study of 16 ports found that 12 of them would have significant capacity problems by 2010, which isn't surprising since global container traffic is forecast to nearly triple in just two decades.<sup>26</sup> It is imperative that the nation have a strategy for shoring up the stability of our climate while expanding capacity as this huge wave of new trade hits our port cities and spreads into the nation in trains and trucks.

#### *More Travel Choices: Building Rail to Complement Highways*

Last but most definitely not least is the issue of intercity passenger movement. Not only would construction of a world-class rail system provide a valuable transportation alternative to consumers and business, travel and freight shifts from other modes would yield substantial energy and environmental benefits. Intercity rail (Amtrak) is 21 and 17 percent more energy-efficient than automobile and airline travel, respectively.<sup>27</sup> Rail emits 0.18 kilograms of CO<sub>2</sub> per passenger mile, compared to 0.21 and 0.35 from autos and planes respectively.<sup>28</sup>

Thankfully we can look to the Revenue Commission for a conceptual framework for moving ahead. It laid out a vision for an intercity high speed rail system based on the work of its Passenger Rail Working Group (PRWG). The PRWG makes five recommendations, the net effect of which would be to create a network of rail connections to complement the world-class interstate highway system. The routes selected by PRWG are a subset of the map of potential ones laid out by the National Association of Railroad Passengers (NARP) in the map below. As NARP director Ross Capon noted approvingly, "By fleshing out ideas and proposing both legislative and funding mechanisms, the PRWG strengthens the initiative proposed by NARP..."<sup>29</sup>



The PRWG recommends a five-step strategy for fulfilling the vision:

1. Identification of the rail network, with the key performance measure being delivery of a system that provides “reliable, on-time passenger service that is travel-time competitive with a auto travel” with other possible measures being “congestion mitigation, safety and environmental benefits and reduced energy use.”<sup>30</sup>
2. Funding of construction of the system, with a total capital cost through 2050 of about \$357 billion, with initial funding of \$5 billion annually for Amtrak and the relevant states.
3. Implementation the network, which requires collaboration of federal, state and local governments.
4. Creation of a national rail strategy, which will require coordination with the growing freight needs described above.
5. Investment in data collection to support multimodal planning, to evaluate modal tradeoffs and shape a real national transportation strategy.

### Empowerment of Local Governments

While a national vision and strategy are essential to making the transportation system more accountable and multimodal, there are also instances when regions should actually have more control over funding, due to their disproportionately large economic and energy footprint. According to the Brookings Institute's Metro Policy Document, 77 percent of minorities - and 65 percent of our overall population - call urban areas home, two-thirds of our population work there and metropolises produce about three-quarters of the nation's output. Although the largest of these areas produce about 55

percent of U.S. carbon emissions, they are our best hope of reducing our carbon footprint because these areas tend to be more energy efficient.<sup>31</sup>

As of the turn of the century, local jurisdictions owned three-quarters of the nation's roads and streets and almost half of the bridges.<sup>32</sup> Yet the Safe, Accountable, Flexible Transportation Efficiency Act – A Legacy for Users (P.L. 109-059), allocated a mere five percent of federal funds to local jurisdictions, out of the Surface Transportation Program (STP).<sup>33</sup> With the enactment of SB 45 in 1998, which helped remedy this incongruity by “suballocating” 75 percent of federal and state funds to regions and localities, California has shown the advantage of an innovative policy approach which provides more control over investments. As summarized in an analysis commissioned AARP:

The law is based on the idea that regions (governed by Regional Transportation Planning Agencies, California's equivalent to Metropolitan Planning Organizations) should make decisions on how best to provide transportation within their own region, while the state concentrates on providing for trips between regions. Since the law was passed in 1997, many areas have directed a larger share of transportation funding to public transportation and other alternatives.<sup>34</sup>

One way for federal policy to follow suit is to suballocate a greater percentage of funding. The U.S. Conference of Mayors, for example, suggests suballocating the entire Congestion Mitigation and Air Quality Improvement (CMAQ) account, currently a practice of only 26 state governments.<sup>35</sup> This would double the percentage of federal dollars going to local governments.

A bigger step would be to suballocate both the CMAQ program and STP, a fivefold increase in the percentage going to local governments. STP, a program created in 1991 to allow states to “flex” funding into alternative modes of transportation, has instead largely been used for traditional highway construction and maintenance purposes. Thankfully from 1992-2001 localities “flexed” their modest portion of STP into transit projects twice as much as states.<sup>36</sup>

Given this track record, there would be substantial environmental and energy benefits to more local control of this account. Public transportation is essential to maximizing energy efficiency and environmental quality. According to a report commissioned by the American Public Transportation Association in March of this year, public transportation reduces vehicle miles traveled by American households by 102.2 billion miles a year and saves 4.2 billion gallons of gasoline- equivalent to three times the amount of U.S. imports from Kuwait.<sup>37</sup>

Public transportation also reduces carbon emissions by 37 million metric tons annually. Put in perspective, all households in New York City, Washington D.C., Atlanta, Denver and Los Angeles would have to completely stop using electricity in order to achieve similar reductions.<sup>38</sup> Expanding public transportation therefore must be part of the

equation when considering greenhouse gas emissions reductions and energy independence.

### Incentives for Development Rule Reform to Unleash More Consumer Choices

Rules that govern development must be reformed to allow for the development of more compact, transit-friendly, walkable neighborhoods. In spite of the intense media coverage of the smart growth issue in recent years, surprisingly few jurisdictions are changing the rules to accommodate market demand. For example, a recent study found that local jurisdictions in Illinois have adopted some policies yet a low-level of implementation prevails.<sup>39</sup>

More importantly, there is evidence of government intervention in the marketplace that not only exacerbates sprawl but deprives consumers of housing choices, effectively excluding them from many communities. Regulatory tools, most notably low-density zoning which mandates separation of land uses (so that the corner store is illegal across the country, as former Maryland Governor Glendening is fond of quipping) are actually associated with more sprawl can be racially and economically exclusionary, in part because they are invariably implemented only in certain jurisdictions within a metropolitan region.<sup>40</sup>

The developer survey cited above provides evidence the widespread use of these exclusionary, consumer-preference-trumping tools. In every region of the country, the main reason developers cited for their inability to provide alternative development styles was government regulation, with a national average of 78.2% agreeing that's the case.<sup>41</sup>

This is unsurprising to experts such as Anthony Downs who has noted:

No metropolitan area has anything remotely approaching a free land use market because of local regulations adopted for parochial political, social and fiscal purposes. Most suburban land use markets are dominated by local zoning and other regulations that are aimed at excluding low-income households and that distort what would occur in a truly free market.<sup>42</sup>

Liberalizing rules would yield more choices for consumers in the market for residential and business property, save oil and cut pollution by reducing auto traffic. One recent analysis of 40 growth scenarios including rules reform found that VMT savings over the next 20 years would range from 10% to 20%, compared to projected trends.<sup>43</sup>

In terms of specific policy levers for achieving liberalization of government regulation of development, there are various possibilities. For example, in Portland (OR), development outside of an urban growth boundary (UGB) is closely regulated while red tape is slashed for developers interested in projects within the boundary, as one expert sums up:

Inside the UGBs, property owners not only gained the explicit right to develop land for urban uses, but they were given substantially more development rights

than perhaps they have ever enjoyed. Those rights included higher-density and intensity development of land, infrastructure commitments, and expedited review of development proposals...Since I am familiar with both metropolitan Portland and Atlanta, it is my personal observation that rezoning proposals to build higher-density housing and mixed use development in metropolitan Portland take a few months but rarely much more than a year (even with court appeals), while the same sorts of proposals in metropolitan Atlanta take a year and often more, and up to a decade if the courts are involved.<sup>44</sup>

Portland achieved this liberalization under a regional governance structure called Metro, but similar measures have been adopted by other types of groups such as the Metropolitan Planning Commission in San Francisco, which offers financial incentives for local jurisdictions willing to liberalize rules to allow for compact, mixed-use development around proposed Bay Area Rapid Transit stops. For example, the Greater Regional Transportation Authority in Atlanta, has the authority to deny infrastructure funding for projects in the Atlanta region which fall short of smart-growth specifications.<sup>45</sup>

To meet the pent-up demand for new development types, the planning provisions in the new transportation bill must provide incentives for reforming local rules, especially near transit stops. A modest program – no more than \$500 million – providing technical assistance, a higher federal match for transit project funding, and discrete grants for rules liberalization programs would yield disproportionately large results.

There are large potential environmental benefits of making these choices more widely available for consumers. In fact, a popular new study of development and VMT found that

...as a rule of thumb, it is realistic to assume a 30 percent cut in VMT with compact development...Making reasonable assumptions about growth rates, the market share of compact development, and the relationship between VMT and CO<sub>2</sub>, smart growth could, by itself, reduce total transportation-related CO<sub>2</sub> emissions from current trends by 7 to 10 percent in 2050. This reduction is achievable with land use changes alone.<sup>46</sup>

### Innovative Revenue-Generation and Price Signals

Combined with increased investment in transportation alternatives and liberalization of policies that govern development, changing price signals received by drivers would achieve dramatic VMT savings and generate new revenue for construction of alternatives.<sup>47</sup> A focus on demand is key, as the Eddington Report noted: “Policies to influence demand must be considered alongside, and in many cases before, turning to increase supply.”<sup>48</sup>

Innovative pricing policy is in fact central to the Eddington Report’s recommendations, including the following observations:



- Introducing markets (pricing) where none exist can have a very powerful and positive economic effect in any sector. The transport sector is no exception, and in particular the potential for benefits from a well-designed, large-scale road pricing scheme is unrivalled by any other intervention.<sup>49</sup>
- Provided it is well targeted, a national road pricing scheme of this type [referenced elsewhere in the report] could reduce congestion by some 50% below what it otherwise would be in 2025 and reduce the economic case for additional strategic road infrastructure by some 80%.<sup>50</sup>
- There are distributional effects, with some commuters being worse-off unless they can be flexible with travel times or good alternative travel options are available, and in implementing a road pricing scheme this needs to be considered.<sup>51</sup>

The last of these is especially noteworthy, especially the mention of transportation alternatives. Recent analyses of pricing in the U.S. and internationally (the two most prominent recent examples being London and Stockholm which have adopted citywide congestion pricing programs) have found that ensuring alternatives such as transit (rail or bus) are available is key to ensuring equity as well as public acceptance of new road pricing programs.<sup>52</sup>

The portfolio of options includes road pricing, parking pricing/parking cash-out, and pay-as-you-drive insurance.

### *Road Pricing*

An increasing number of jurisdictions around the world are turning to this policy, which has the distinct advantages of a more direct linkage to the use of roads than the gas tax, especially if we commit as a nation to slashing gasoline use as advocated by NRDC. Secretary of Transportation Mary Peters described other advantages of this policy in a recent speech to the nation's governors:<sup>53</sup>

The brilliance of road pricing is that it achieves three major policy objectives simultaneously.

*First*, it will immediately reduce congestion and deliver substantial economic benefits. Drivers have proven in a growing array of road pricing examples in the U.S. and around the world that prices can work to significantly increase highway speed and reliability, encourage efficient spreading of traffic across all periods of the day, encourage shifts to public transportation and encourage the combining of trips. In fact, the National Household Travel Survey shows on an average workday, 56% of trips during the morning peak travel period and 69% of trips during the evening peak travel period are non-work related, and 23% percent of peak travelers are retired.

*Second*, it will generate revenues for re-investment precisely in the locations that need investment the most. Recent estimates in a forthcoming paper, "Toward a

Comprehensive Assessment of Road Pricing Accounting for Land Use” by economists Clifford Winston and Ashley Langer at the Brookings Institute conclude that utilizing congestion pricing in ONLY the largest 98 metropolitan areas would generate approximately \$120 billion a year in revenues while simultaneously solving the recurring congestion problem in those areas. Implementation of a broader road pricing strategy tied to wear and tear and reconstruction costs would obviously produce even higher revenue. In 2006, as a nation, we spent approximately \$150 billion on all of our highways. State and local officials would even gain additional flexibility to reduce the wide array of taxes currently going into transportation that have nothing to do with use of the system.

*Third*, direct pricing will reduce carbon emissions and the emissions of traditional pollutants. According to Environmental Defense, a nonprofit environmental organization, congestion pricing in the city of London reduced emissions of particulate matter and nitrogen oxides by 12 percent and fossil fuel consumption and CO<sub>2</sub> emissions by 20 percent; a comprehensive electronic road pricing system in Singapore has prevented the emission of an estimated 175,000 lb of CO<sub>2</sub>; and Stockholm’s congestion pricing system has led to a 10-14 percent drop in CO<sub>2</sub> emissions.

Generally, road pricing measures are an established and growing means to address both congestion and financing issues in transportation. These measures can be sub-divided into the following categories:

- Congestion pricing – Generally comprised of dynamic pricing on metropolitan radials and orbitals. High Occupancy/Toll (HOT) lanes are included in this category. Many examples now operating in the US.
- Area/Cordon Pricing – pricing of a downtown or cbd area, so far with simplified (static) congestion pricing. Implemented in London, Stockholm, Singapore, Oslo, Bergen, Trondheim. San Francisco is planning to implement area pricing in about two years. New York City was committed to the use of congestion pricing as a key part of its landmark PlanNYC to repair and expand the city’s aging transportation system, and indeed it would have provided half of the revenue for planned transit improvements, but unfortunately the state legislature turned the city down.<sup>54</sup>
- Toll roads – intercity highways are increasingly being tolled in the US, recent federal legislation now permits tolling of some previously untolled Interstate highways. Increasing public-private partnerships to build privately financed and operated toll roads (such as the Dulles Greenway near Washington DC) are expected to spread considerably, significantly increasing the number of tolled intercity highways.
- Universal tolling – This has been implemented for trucks in Germany and is being advanced in the UK as the long-term combined solution for congestion pricing and road financing.

One key issue to be aware of is that there are very substantial GHG reductions from improved traffic flow, roughly equal to those from reduced VMT:

- In London, total CO2 reductions have been estimated as 19.5% within the zone, split evenly between personal vehicle trip reduction and congestion reduction improving fuel economy. Total CO2 reductions are in the neighborhood of 37,000 tons/year.
- In Singapore, total CO2 reductions are calculated at 67,000 tons/year, with approximately two-thirds coming from trip reductions/mode shifts, and the remainder from speed improvements inside and outside the zone.
- San Diego's I-15 HOT Lanes provide total CO2 reductions calculated at 2,100 tons/year, with approximately 40% attributable to improved fuel economy of SOV vehicles in the HOV lanes, and the remainder to improved fuel economy of vehicles in the general purpose lanes. In this implementation, there is NO reduction in VMT (and in fact, a very small increase) as traffic is merely shifting which lanes are used.

In terms of utility and consumer preference, the following non-financial effects can be discerned from area pricing:

- Utility increases for remaining (75-80%) of drivers who pay charge, from improved travel time and reliability;
- Utility increases for pre-existing transit users, who have benefits from increased transit service and levels of service
- Utility increases for individuals living, working and visiting the priced zone, due to decreased air pollution and improved urban environment
- Mixed effects on those priced out of their cars: mostly utility loss due to coerced mode shift, but some former drivers will have higher utility from current, significantly improved transit service than from their previous, congested drive.

For both lane conversions (e.g., HOT lanes) and any new priced lane construction there is an across the board increase in consumer utility. All drivers experience reduced congestion, and use of the paid lane is always an opt-in (a free, general purpose remains).

#### *Pay-As-You-Drive Insurance*

Currently, drivers pay for insurance based on residential location, gender, age and driving record. A rational additional criterion, which relates directly to risk since most claims occur while vehicles are in motion, should be miles driven. There are big potential advantages vis-à-vis traffic reductions, as expert Allen Greenberg noted in recent testimony before the California Air Resources Board:

Research suggests that if premiums were charged based on miles driven, an 8-20% reduction in driving and related congestion would result, along with fewer crashes and less pollution. This reduction in driving would occur voluntarily and

be accomplished through trip consolidation, carpooling, alternative transportation, and forfeiting of low-value trips. The Brookings Institution has projected that 63.5% of households would save an average of 28% on their total premiums (including the portion of premiums providing comprehensive coverage, which was assumed not to vary by mileage), or about \$496 annually for the households that do save.<sup>55</sup>

Progressive Insurance piloted this measure in Texas in a program called “Autograph” between 1998 and 2001, with premiums of 1200 drivers based on how much and when they drove. Consumer savings were in the range of 25 percent, and the company was pleased with the outcome, but the capital cost of installing global positioning system (GPS) units in vehicles put profitability into question.<sup>56</sup>

### *Removing Barriers to Greater Use of Innovative Pricing Techniques*

I urge Congress to heed the advice of Michael Replogle of the Environmental Defense Fund, a knowledgeable advocate for greater use of pricing in transportation, who recommends that

...federal law should eliminate barriers to needed market-based transportation reforms by (1) ending all federal prohibitions on tolling existing highways; (2) requiring a study of how state insurance regulations inhibit or facilitate pay-as-you-drive insurance with reporting by the states on steps they are taking to eliminate barriers to such policies, and a study of how PAYD insurance could facilitate a transition to VMT fees.<sup>57</sup>

Congress should also consider providing incentives in the next transportation bill. In addition to new grant and loan programs (such as the current Urban Partnership Agreements), one model is in the Future Fuels Act (H.R. 4640), proposed by Congressman Jim Gerlach (R-PA) in the 109<sup>th</sup> Congress. This bill would pay companies a penny per mile insured, providing a powerful incentive. Another means to encourage use of this innovative policy would be to add state pay-as-you-drive initiatives to the list of eligible uses of CMAQ funding.

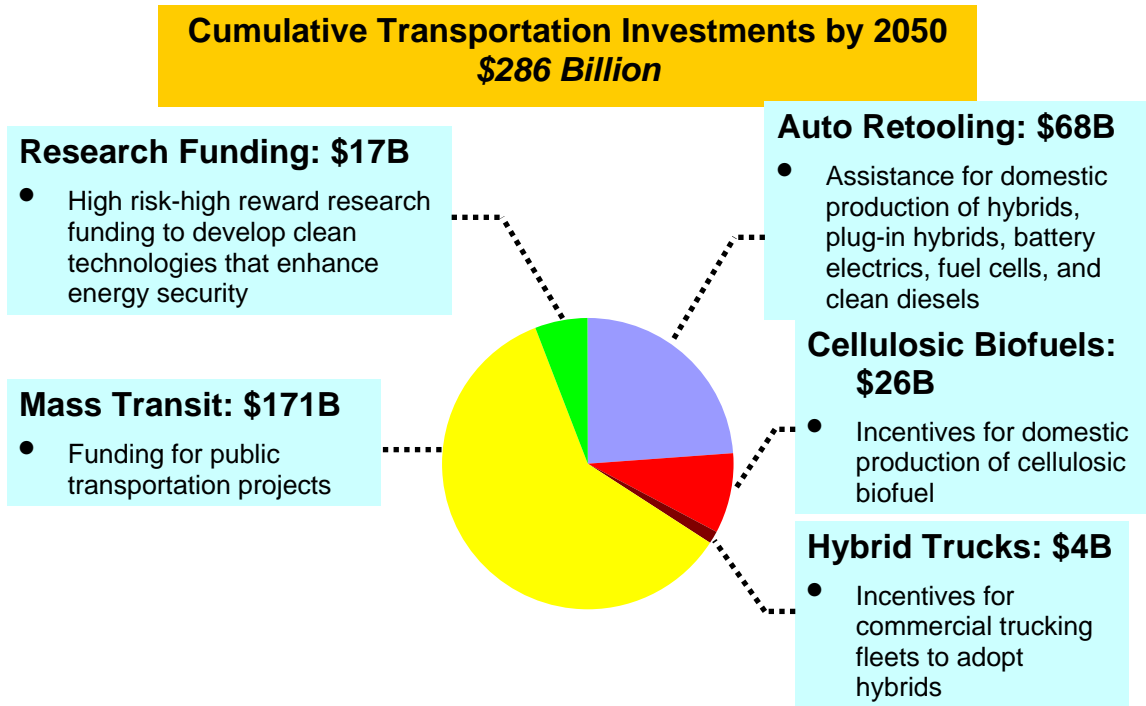
### Linkages Between Transportation and Climate Policy

The bottom line for your Committee is that federal transportation policy should be linked with climate policy. The upcoming transportation bill can be seen as our next big energy bill, which should contribute to, rather than exacerbate, carbon dioxide emission reductions that will be required in climate policy.

One way to measure the success of the transportation bill is whether or not it bookends EISA, which was a good start toward the reductions we need from transportation as part of a climate strategy. In fact, NRDC analyzed the heat-trapping pollution reductions due to the transportation provisions in EISA, finding that they would achieve 8.3 percent to

11.7 percent of the reasonable cuts proposed in the Boxer-Lieberman-Warner Climate Security Act. How much will the next transportation bill contribute?

If the bill contains the components listed above, the contribution should be substantial. The linkage should be a two-way street, however. Thanks to the work of this Committee, the stage is set for that to be the case when Congress takes this up climate legislation next year. In addition to the hundreds of billions of dollars in federal investments in local and state infrastructure, the Climate Security Act included some notable transportation-specific investments as shown in the pie chart below.<sup>58</sup>



These are very strategic investments in a low-carbon, energy-efficient future. I urge your Committee to include and indeed expand on them in next year’s bill, and to pursue opportunities to add other policy that would complement transportation legislation. An economywide climate policy with robust transportation provisions combined with fundamental reform of federal transportation policy, layered on top of the historic fuel economy standards in EISA, will transform transportation into a low-carbon, energy-efficient system better suited to the nation’s changing demographics.

Thank you for your time.

<sup>1</sup> Leinberger, Christopher B., *The Option of Urbanism: Investing in a New American Dream*, Island Press, Washington, D.C. 2008.

<sup>2</sup> “Emissions of Greenhouse Gases in the United States 2006,” Energy Information Administration.

<sup>3</sup> Janet Rothenberg Pack

<sup>4</sup> Pendall

<sup>5</sup> Leinberger, *The Option of Urbanism*, 2008.

<sup>6</sup> Harvard School of Design

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- <sup>7</sup> Census for 1960 and 2000.
- <sup>8</sup> Levine and Frank, 2006
- <sup>9</sup> Levine, 2006
- <sup>10</sup> Levine and Inam, 2004
- <sup>11</sup> The Energy Information Administration estimates that daily imports averaged at 10,071,000 barrels per day in 2007. To these, we apply the 2007 average imported oil price of \$62.10 per barrel as reported in EIA's Annual Energy Outlook 2008.
- <sup>12</sup> Michael M Grynbaum, "Oil is Blamed for Widening Trade Deficit," *New York Times*, January 12, 2008.
- <sup>13</sup> Former Secretary of Energy James Schlesinger, "The Oil Embargo 30 Years Later: Are We Prepared?" Heritage Foundation panel, October 14, 2003.
- <sup>14</sup> Eddington Transport Study – The Case for Action: Sir Rod Eddington's Advice to Government, United Kingdom Department for Transport, December 2006.
- <sup>15</sup> Ibid.
- <sup>16</sup> Ibid.
- <sup>17</sup> The Honorable Mary Peters, Secretary of Transportation, "Toward a New Surface Transportation Economic Model," Speech at the 2008 National Governors Association Winter Meeting, February 24, 2008.
- <sup>18</sup> Commentary on the Report of the National Surface Transportation Policy and Revenue Study Commission, National Transportation Policy Project of the Bipartisan Policy Center, February 26, 2008.
- <sup>19</sup> Ibid.
- <sup>20</sup> American Society for Civil Engineers, Report Card for America's Infrastructure, 2005.
- <sup>21</sup> Conditions and Performance Report, U.S. DOT
- <sup>22</sup> The Brookings Institution, "A Bridge to Somewhere: Rethinking American Transportation for the 21<sup>st</sup> Century, Metropolitan Policy Program 2008.
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- <sup>24</sup> Eno Transportation Foundation, Efficient Goods Movement and the Environment, Summary of Symposium Series, October 2005-March 2006.
- <sup>25</sup> Ibid.
- <sup>26</sup> Ibid.
- <sup>27</sup> Oak Ridge National Laboratory, Transportation Energy Data Book 2005.
- <sup>28</sup> Calculation by Frances Bourne of Amtrak based on 2006 data provided by the World Resources Institute. Assumes single-occupancy for the auto and radiative-forcing from high altitude pollutant release from aircraft.
- <sup>29</sup> December 6, 2007 Press Release: NARP Applauds Passenger Rail Working Group Study.
- <sup>30</sup> Passenger Rail Working Group, "Vision for the Future: U.S. intercity passenger rail network through 2050," December 6, 2007.
- <sup>31</sup> *MetroPolicy: Shaping a New Federal Partnership for a Metropolitan Nation*, Brookings Institution, 2008.
- <sup>32</sup> "Why Local Officials Seek Stronger Funding Commitments," *Progress Newsletter*, Surface Transportation Policy Project, Volume XIII, Number 2, March 2003.
- <sup>33</sup> Brookings, "A Bridge to Somewhere"
- <sup>34</sup> Ernst, Michelle and Barbara McCann, "Legislating Mobility Options: A Survey of State Laws Promoting Public Transit, Walking and Bicycling," Surface Transportation Policy Project, September 2005.
- <sup>35</sup> Puentes, Robert and Linda Bailey, "Improving Metropolitan Decision Making in Transportation: Greater Funding and Devolution for Greater Accountability," Brookings Institution, October 2003.
- <sup>36</sup> Bailey, Linda, "Solving Metropolitan Transportation Needs: New Decision-Makers, New Decisions," *Progress Newsletter*, Surface Transportation Policy Project, Volume XIII, Number 2, March 2003
- <sup>37</sup> Bailey, Linda, Patricia L. Mokhtarian, Ph.D. and Andrew Little, "The Broader Connection between Public Transportation, Energy Conservation and Greenhouse Gas Reduction," American Public Transportation Association, February 2008.
- <sup>38</sup> Ibid.
- <sup>39</sup> Talen and Knaap 2003
- <sup>40</sup> Pendall 1999, 2000
- <sup>41</sup> Levine and Inam 2004

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- <sup>42</sup> Downs 1999
- <sup>43</sup> Johnston 2006
- <sup>44</sup> Professor Chris Nelson, as quoted in Levine's *Zoned Out*, 2006.
- <sup>45</sup> Levine 2006
- <sup>46</sup> Ewing, Reid, et al, *Growing Cooler: The Evidence on Urban Development and Climate Change*, Urban Land Institute, Washington, D.C. 2008.
- <sup>47</sup> An excellent description of current implementation and studies of different pricing measures can be found at: [http://ops.fhwa.dot.gov/tolling\\_pricing/value\\_pricing/quarterlyreport/qtr2rpt07/index.htm#toctb](http://ops.fhwa.dot.gov/tolling_pricing/value_pricing/quarterlyreport/qtr2rpt07/index.htm#toctb)
- <sup>48</sup> Eddington Transport Study, 2006
- <sup>49</sup> Ibid.
- <sup>50</sup> Ibid.
- <sup>51</sup> Ibid.
- <sup>52</sup> See for example Jackson, David, Sean Peirce, Margaret Zirker and Michael Baltes, "Urban Partnership Proposals: Review of Domestic and International Deployments & Transit Impacts from Congestion Pricing," Paper for the Transportation Research Board, 87<sup>th</sup> Annual Meeting, January 2008; and Cain, Alasdair and Peter M. Jones, "Does Urban Road Pricing Cause Hardship to Low-Income Car Drivers? An Affordability-Based Approach," Paper for the Transportation Research Board 87<sup>th</sup> Annual Meeting, January 2008.
- <sup>53</sup> Transportation Secretary Peters, op. cit. p. 8.
- <sup>54</sup> City of New York, *planNYC: A Greener, Greater New York*.
- <sup>55</sup> Greenberg, Allen, Comments on REG-2008-00020 -- Pay-As-You-Drive Automobile Insurance, June 18, 2008.
- <sup>56</sup> Ibid.
- <sup>57</sup> Replogle, Michael, "Transforming U.S. Transportation to Spur Innovation: A Call to Support Performance-Based Transportation Funding," Discussion Draft, June 15, 2008.
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