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GLOBAL WARMING AND TRANSPORTATION SYSTEM PLANNING

By Bob Yuhnke

Perhaps the greatest challenge to the survival of both natural habitats and human culture as we now know it is the disruption of natural systems that is now occurring as a result of climate change. Everywhere we look there is evidence of planetary change from the global temperature record, to the record pace of retreat of the arctic ice pack, the melting of the Antarctic and Greenland ice sheets, the first emergence spring flowers and insects in temperate zones, the migration of temperature sensitive species, the transport of increased heat loads through the flow of oceanic currents, the effects on marine species of shifts in ocean temperatures, and the loss of habitats for species such as polar bears. The evidence of change is more dramatic and occurring faster than most experts would have dared guess even 10 years ago. Among the most ominous likely impacts of these changes are the threatened loss of productive arable land and a reduction in total useable water in a world where 2 billions of the human population are already at risk from malnutrition and lack of access to safe sources of fresh water.

The driver at the heart of this accelerating global threat is the conversion of carbon from geological repositories, where it has been safely stored for more than 350 million years, into CO₂, the greenhouse gas that accounts for half or more of the greenhouse effect. This conversion occurs when we combust coal, oil and natural gas to generate electricity, heat our homes, drive our cars, run tractors to grow and harvest our food, and manufacture and transport the goods of everyday commerce.

As the largest emitter of greenhouse gases in the world today, the U.S. must provide leadership in reducing the global atmospheric burden of greenhouse gases. The world cannot stop the accelerating rate of global change if U.S. emissions continue to grow.

The U.S. cannot begin to reduce total greenhouse emissions without reducing emissions from the transportation sector. Approximately 30% of U.S. CO₂ emissions – about 7% of global emissions – are generated by the cars, trucks, busses, locomotives and aircraft that provide mobility and serve as the arteries of commerce. While total U.S. emissions of CO₂ have

grown 20% from 1990 until 2004, emissions from the transportation sector during the same period have grown by 27%. If transportation emissions

Table 2-7: CO₂ Emissions from Fossil Fuel Combustion by End-Use Sector (Tg CO₂ Eq.)

End-Use Sector	1990	1998	1999	2000	2001	2002	2003	2004
Transportation	1,464.4	1,663.4	1,725.6	1,770.3	1,757.0	1,802.2	1,805.4	1,860.2

U.S. EPA, Greenhouse Gas Emissions from the U.S. 1990 – 2004 (2006)

continue to grow at this pace, large emissions reductions from other sectors such as electric power generation, will be offset by emission growth from the transportation sector. Net reductions in greenhouse gas emissions from the U.S. cannot be achieved without also reversing the growth trend in emissions from the U.S. transportation sector.

SAFETEA-LU.

Last August, the president signed into law the latest 6-year reauthorization of the Nation’s transportation program. The measure delivered a record \$286.4 billion for roads, transit, and planning to governments across America. Together with another \$180 billion expected to be spent by state and local governments, the U.S. will likely spend \$465 billion –nearly half a trillion dollars -- on expanding the Nation’s public transportation system by 2011. This is the largest public infrastructure investment program in the world, with the potential to expand the U.S. contribution to the global atmospheric load of greenhouse gas emissions, OR to turn the corner to begin reducing greenhouse emissions from transportation sources.

SAFETEA-LU, the more memorable acronym for the “Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users,” contains more than just spending authorizations. It also re-enacted, with revisions, the transportation planning provisions that guide how projects are developed and authorized for federal funding. First enacted in 1965 to require that core cities and expanding suburbs be forced to collaborate through a regional planning board in the development of a single integrated transportation plan for a large metropolitan area. During the intervening decades Congress has added other policy objectives. Among the most important was the addition in 1990 of the obligation for the metropolitan planning organization to plan a transportation system that would achieve the cap on motor vehicle emissions adopted by the state’s air pollution control plan for a metropolitan airshed. In 1991, ISTEA granted

MPOs more independence from the funding control of state DOTs by requiring the states to adopt statewide transportation plans that incorporate the MPO plan without modification. For metropolitan areas, ISTEA and subsequent re-enactments have required that the states honor the planning choices adopted by the local elected officials who make up the regional planning board. Outside of metropolitan areas, the state were left with largely unfettered control over the selection of projects without any federally mandated deference to local decisions.

This scheme was largely retained in the 2005 amendments, but with a few potentially revolutionary additions. For example, since ISTEA federal law has declared four objectives for the metropolitan planning process: 1) improve mobility, 2) support economic development, 3) minimize fuel consumption, and 4) minimize air pollution. 23 U.S.C. § 134(a) (1993). For nearly a decade and a half, these objectives were understood to be the general statement of national policy, but were treated as largely hortatory because they did not provide a benchmark for federal approval of plans. But the 2005 amendments have changed the importance of these national objectives by mandating that MPOs adopt transportation plans “to accomplish the objectives in subsection (a).” P.L. 109-59, §6001(a), amending 23 U.S.C. 134(c)(1) [119 STAT. 1840]. Similar language in amended section 135(a)(1) (Statewide Planning) requires that the Statewide Transportation plan also “accomplish the objectives stated in section 134(a).”

SAFETEA-LU also added a new requirement that U.S. DOT make a “planning finding” before approving funds for an MPO’s or a State’s program of transportation projects. Compliance with the duty “to accomplish” the national planning objectives must now be determined before US DOT can make the new “planning finding” required by § 135(g)(7):

(7) Planning finding.--A finding shall be made by the Secretary at least every 4 years that the transportation planning process through which statewide transportation plans and programs are developed is consistent with this section and section 134.

To find compliance with all four planning objectives in §134(a)(1), U.S. DOT must determine that an MPO has adopted a plan that will not just enhance regional mobility and economic development, but will also “minimize fuel consumption” and “air pollution.” This now imposes on both metropolitan

and state transportation planning agencies an important responsibility to investigate regional and statewide strategies for minimizing fuel consumption, and to adopt into their plans those strategies likely to achieve the greatest reduction in fuel consumption that is consistent with also enhancing mobility and economic growth.

The strategies available to accomplish these objectives include expanded investment in transit services that achieve much greater fuel efficiencies/mile traveled compared to individual travelers driving alone, and land use strategies that encourage development in close proximity to transit stations so that large numbers of travelers can conveniently walk or bike to public transportation services that will provide comfortable, timely cost-effective access to routine daily destinations without having to drive.

Planning scenarios for a few metropolitan planning areas have suggested that investments in enhanced transit services, when combined with transit-oriented development can achieve reductions in VMT, and corresponding reductions in fuel consumption, in the 20% range. This would require a major shift in investment priorities from a primary focus on expanding highway capacity to moving transit developments such as Denver's FastTracks light rail system to the highest priority. Most importantly, these planning exercises demonstrate that expanding transit services, rather than highway capacity, also offers the potential of achieving effective congestion relief on existing highway capacity. And transit oriented development also focuses new development in areas with existing roadways, water, sewer and power services, thereby reducing the overall costs of infrastructure per new household.

The goal of creating sustainable communities in the Global Warming Century will demand that reducing fuel consumption become one of the primary benchmarks for measuring the acceptability of new development. SAFETEA-LU provides direction by requiring planning agencies to envision how transportation systems and urban design can be integrated to reduce fuel consumption at the metropolitan scale. Now we, the citizens, must play an active role to demand that our local elected officials take these directives seriously, and begin to explore and offer alternatives to the car-centered culture that we will want to live in, and that will help keep our planet livable.