TRANSPORTATION POLICY, ENVIRONMENTAL POLICY AND SUSTAINABILITY: Looking Back, Looking Forward

2010 Lake Arrowhead Conference on
Transportation Infrastructure & Sustainability

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Global Sustainability is Probably the Greatest Challenge to Transportation Policymakers

- **Living within limits imposed by available resources and the carrying capacity of our environment**
- **Addressing interconnections among the economy, social wellbeing, infrastructure, & the environment**

- **Equitably distributing resources and opportunities for advancement across places and among generations**

Improved Transportation Infrastructure is Critical to Global Development & Remains Critical at Home

- **The term “mobility” is used in everyday discourse in two ways that are fundamentally interconnected:**
  - **Physical mobility**
  - **Economic & social mobility**
- **The connection is most obvious when we examine rapidly developing areas of the world, but remains relevant in California in 2010**
- **Poverty is everywhere correlated with lack of physical mobility**
- **Severe environmental damage has resulted from our pursuit of mobility but we need BOTH more mobility & more sustainability**

In the US and California, we must

- **Continue to expand “mobility” and/or “accessibility” to education, employment, health care, and other services…**
- **Existing infrastructure is aging, needs renewal, and becoming inefficient because of congestion**
- **Population growth will continue**
- **Financial resources very limited**
- **We must bear the substantial cost to make the maintenance and enhancement of transportation infrastructure environmentally and financially sustainable**

In "Developing Areas" Mobility is Crucial

Even modest improvements in mobility improve quality of life; especially in rural areas

Globally there are enormous opportunities to bring mobility improvements to rural areas in country AND to build the export economy at the same time

Global Reductions in Poverty Related to Investments in Physical Mobility

- **There was 20% growth in auto ownership in China during the past two decades; growth of more highway infrastructure than the US Interstate system; expansion of public transit and movement to urban areas – difficult to separate cause from effect**
- **Since 1980 the number of people living in poverty in China fell from 85% to 15.9%**
- **There are today 600 million fewer people living in poverty in China than there were in 1980**
- **In the rest of the world, during the same time period the number of people living in poverty declined by only 10%**

The Mobility Gap Between Rich and Poor Persists in the US

Deep recession has left 13% of US population in "poverty," (definition varies by household size)

14 million children under 19 (19 % of age group) live under poverty line

37 million lack health insurance

Ownership of a car is seen as an "asset" that makes it more difficult to receive public assistance. Many entry level jobs are not transit accessible or require working shifts that make transit limiting.

Mobility/Sustainability Tradeoffs are Fundamental

Mobility has contributed to well-being through education of children as much as any other element of education	**The system that provides mobility pollutes the air and soil and creates threat to our health**
Mobility as an element of public health has contributed to increasing global life expectancy as much as medicine and sanitation	**Child pedestrian and vehicular crashes are the leading cause of death to children. Auto air pollution is a cause of asthma.**
Improved mobility is everywhere enhancing economic growth	**Increasing mobility is everywhere heightening global climate change**

"Sustainable Mobility" Concept is Emerging Globally

- **Erling Holden, for example, advocates:**
  - **New technology to provide improved mobility while relying upon less petroleum fuel**
  - **Greater reliance upon public transport, cycling, walking**
  - **The development of "green attitudes" leading people to make choices that take environmental implications into account**
  - **Land use planning to raise densities and bring destinations closer together in space**

How Can We Incorporate Infrastructure Policy Into Our Reach Toward Sustainable Mobility?

- **There is a naïve but broad consensus that almost any spending on infrastructure**
  - **Creates jobs**
  - **Improves economic efficiency**
  - **Improves international and regional competitiveness**
- **The research literature does not support this simplistic view**
  - **Infrastructure CAN in some ways and under certain circumstances contribute to competitiveness and employment and sustainability**
- **Let’s try to focus discussion here on the particular connections**

Spending on Roads and Bridges

- **Can reduce overall cost in long run of doing business – costs of movement of people and goods – by reducing delays and increasing connectivity to opportunities.**
- **But in many instances infrastructure spending primarily redistributes economic advantages and disadvantages**
- **Interstate Highway System the most example**
  - **Some areas gained/some lost**
  - **Overall, the national "net" benefits far exceeded the losses**

Federal Expenditures Should Focus on Net Long-Term Productivity Gains

- **Many infrastructure projects – earmarked projects in particular – use federal money for redistribution**
- **Must find better ways of measuring performance of federal infrastructure expenditures**
  - **With respect to economic productivity**
  - **With respect to environmental sustainability**
- **RAND research shows no consensus in research findings**
- **Resources for projects come from taxes and loans – is return on public investment greater than the costs of those resources?**

"Shovel-Ready" Criterion for Economic Stimulus is Inadequate

- **Emphasizes creating jobs in short term over growth in long-term productivity; may slow recovery and decrease competitiveness if productivity gains are foregone in favor or short-term jobs**
- **Emphasizes capital projects over maintenance and operations. Spending on operations and maintenance in many cases can save or create more jobs than spending on new infrastructure**

Making Infrastructure More Sustainable

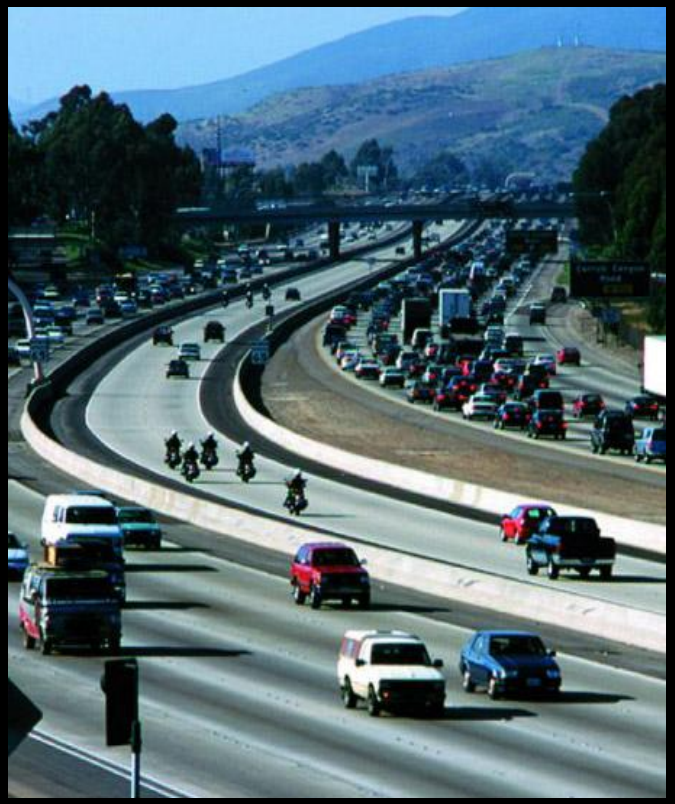
- **Develop better indicators of ways in which spending improves economic productivity**
- **“Internalize the externalities” that reduce the benefits of new infrastructure**
- **Very often, using technology to improve productivity of existing infrastructure yields higher returns than developing more miles of new infrastructure**
- **Where new infrastructure genuinely increases economic productivity, finance it through mechanisms that themselves enhance sustainability and productivity; user fees, for example . . . which often enhance equitability as well**

Lessons from Clean Air Act Since 1970

- **Air is cleaner in most American cities despite increased travel and fuel consumption**
  - **The transportation community dragged its heels but eventually met or exceeded many goals**
  - **We cannot be proud of our planning and policy methods accomplishments**
  - **The vast majority of the progress is the result of technology – vehicles and fuels**
  - **Greater understanding leads us to revise standards to make them more demanding and progress does continue; but we can do much better**

Examples: Making Infrastructure More Productive and Sustainable

Hot lanes attempt to reduce congestion, produce revenue, and internalize externalities

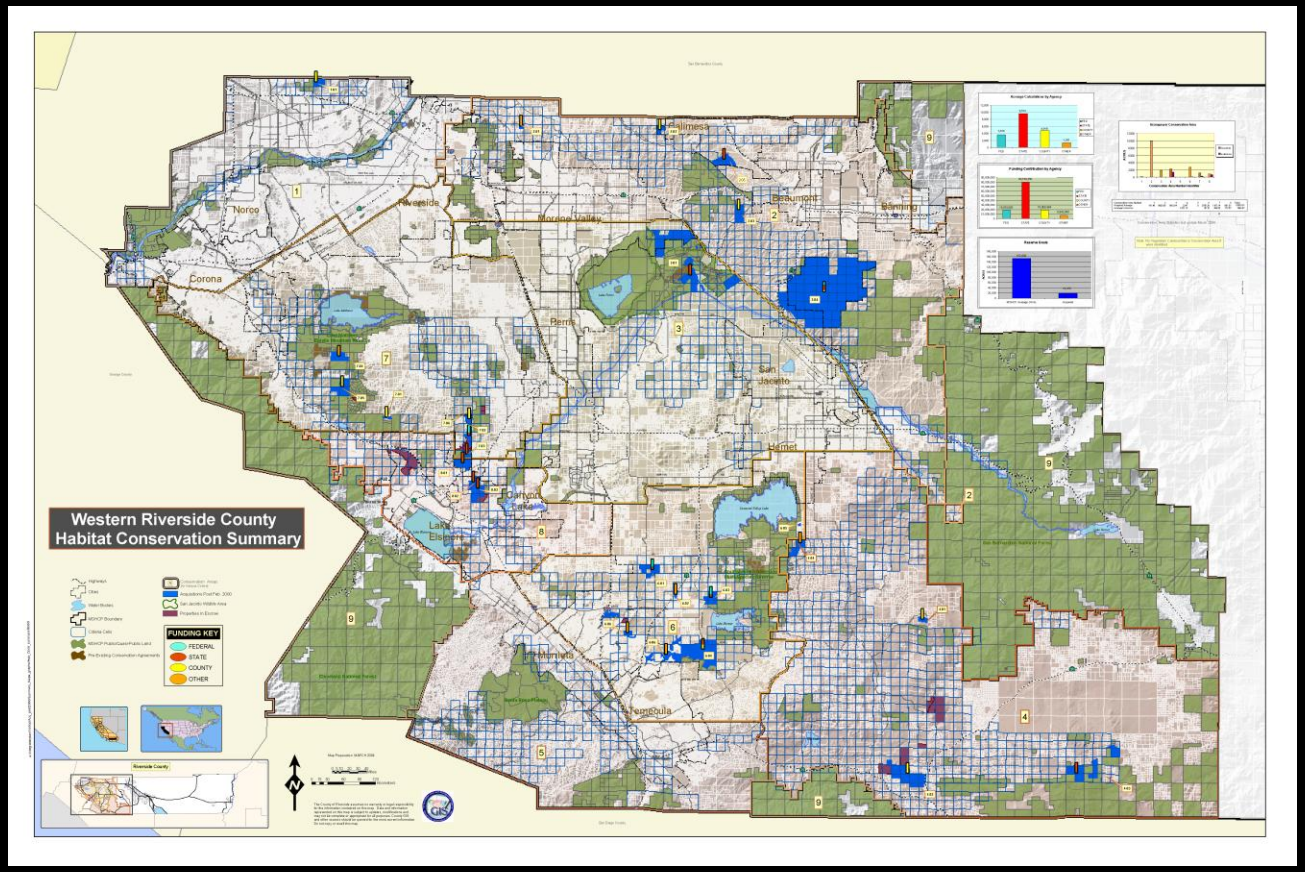


Examples: Making Infrastructure More Productive and Sustainable

Land use strategies to complement transport investments in order to enhance their productivity and reduce their environmental impacts

Examples: Making Infrastructure More Productive and Sustainable

The Western Riverside Habitat Conservation Program undoubtedly will improve infrastructure and preserve endangered species



Conclusions

- **In the future – as in the past – there will be needs to improve and expand transportation infrastructure in order to enhance economic growth. We must aim for both "sustainability" and "mobility."**
- **There is need to dramatically improve our ability to measure and forecast causal linkages between infrastructure investments and economic productivity and be far more selective in infrastructure spending**
- **Technology still has a huge role to play in enhancing the sustainability and productivity of infrastructure investments**

Conclusions, Continued

- **Rather than opposing infrastructure expansion to enhance global sustainability, we must find ways of financing, constructing, maintaining, and operating infrastructure to enhance genuine net growth in economic productivity to occur along with environmental improvement**
- **Other speakers will now tell us how to do so!**

INFRASTRUCTURE, SAFETY,
AND ENVIRONMENT

BACKUP SLIDES

- **The slides that follow this one will be used ONLY in response to questions or as part of a discussion that follows my presentation……**

Combined Burdens of Housing and Mobility

TYPICAL HOUSEHOLD BUDGET IN 28 METROPOLITAN AREAS

(Expenses as a share of income)

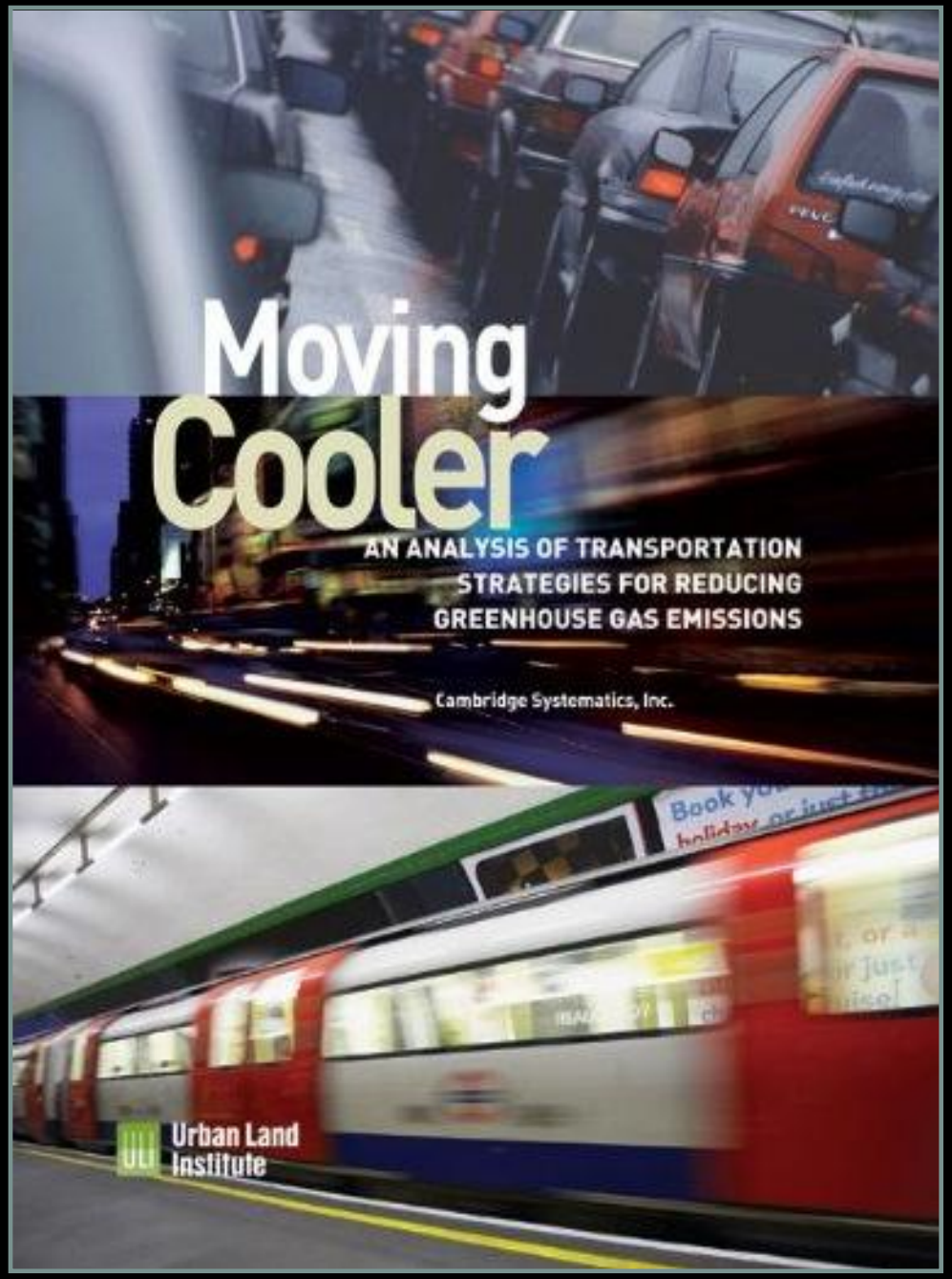
	All Households	Working Families Incomes $20,000 – $50,000
Housing	27.4%	27.7%
Transportation	20.2%	29.6%
Food	10.6%	15.1%
Healthcare	4.7%	7.7%

Most Immediate Sustainability Issue is GHG Reduction

- **Transportation System produces 28% of US manmade GHG emissions**
- **US transportation system probably produces 7% of global GHG emissions**
- **Transportation-generated GHG increasing rapidly over time**
- **Transportation GHG emissions rising most rapidly where global mobility is increasing most rapidly**
- **Mobile sources of GHG appear more difficult to reduce than in other sectors**

My Concern in a Nutshell

- **If we accept global sustainability as a goal, with a strong focus on GHG reduction; we must do so while dramatically expanding global mobility in pursuit of the alleviation of poverty**
- **Thus far emphasis on GHG reduction and on sustainability more broadly, seem to threaten progress toward enhanced mobility in pursuit of poverty reduction**
  - **Cannot sacrifice growth in mobility elsewhere to protect our own privileged position**
  - **Must define sustainable mobility to include equal emphasis on both terms**
- **Finding the right balance is an enormous challenge to transportation policymakers – has huge consequences for infrastructure investments**



- **Produced by Cambridge Systematics for a group of diverse sponsors**
- **Intended to focus policy discussion in the US on the GHG debate**
- **Reaction has been mixed and controversial**

The Debate Thus Far Raises Concerns

- **"Moving Cooler" opens a window on the debate that is just starting**
- **Transportation strategies to reduce GHGs**
  - **Technology: vehicle technology, fuel technology, travel activity, and vehicle and system operations**
  - **Behavioral Modification: pricing, taxes, land use changes, public transportation and non-motorized transportation improvements, ridesharing, government regulations, capacity expansion, better traveler information**

Different Views in Conflict

- **Technological advances will be insufficient to allow expanded mobility globally**
- **Behavioral changes demanded in American lifestyles are unacceptable**

Moving Cooler Findings

Reductions in GHGs estimated to be possible range widely depending upon aggressiveness of the strategies, from a few percentage points to nearly 25% reductions over 35 years in comparison with a baseline scenario.

The most aggressive scenarios involved very substantial price increases, substantial increases in urban densities, and limits on expansion of urban footprints, all of which would widely be seen as very burdensome or unattainable.

Reactions So Far Very Spirited

- **Welcomed by the environmental community and the transit – smart growth advocacy community**
- **Decried on several "blogs" using such terms as "threatening to our way of life."**
- **Most opposition was based on an assumption that low density, suburban auto-oriented lifestyles are what Americans desire**
- **Very little of the criticism was based on possible benefits or costs for poor people, carless people, immobile people or possible impacts internationally**

I Interpret the Report Differently

- **Report provided a useful service – an opening for an ongoing discussion**
- **Assumptions were enumerated and can be subjected to sensitivity testing**
- **Report emphasized the enormity of the role for technology**
- **The reaction emphasized the costs of sustainability in America**

- **What if we imposed upon our discussion the requirement that mobility be enhanced, especially in the poorest countries?**

Sustainable Mobility is a Global Policy Issue

A gallon of petroleum burned in Africa has roughly the same impact as a gallon burned in Chicago

Many opportunities to increase mobility dramatically where needed without reducing mobility in western countries

Many opportunities to reduce GHG in western countries that do not reduce opportunities to increase mobility in developing areas

Under Kyoto accords, Canadian mobile emissions received credit for construction of a natural gas power plant in China – suggests a course of action, but not without complications

"Sustainable Mobility" Must Give Equal Emphasis to Both Words

- **We have not strategized on a global basis how to increase mobility where needed while reducing GHG emissions; the need to do both is pressing**
  - **Can reduce GHG here but also can reduce rise in GHG abroad if we broaden our policy horizon**

Sustainability Challenge is Here

- **Differs from Air Quality challenge in its global nature**
- **Challenges our institutions – strategies must be international**
- **Technology can make enormous contributions**
- **I have not been able to suggest specific solutions, but this is the time to recognize the issue and start moving toward them as a more unified community**
- **Enhanced but "sustainable" mobility is part of the framework for policy framework**
- **Reduced mobility will impoverish rather than enrich**