# Introduction to Session III

## Travel Demand and Urban Form: Lessons and Visions

**Steve Winkelman**
**Center for Clean Air Policy**

**Asilomar Conference on Transportation and Climate Policy**
**August 22, 2007**

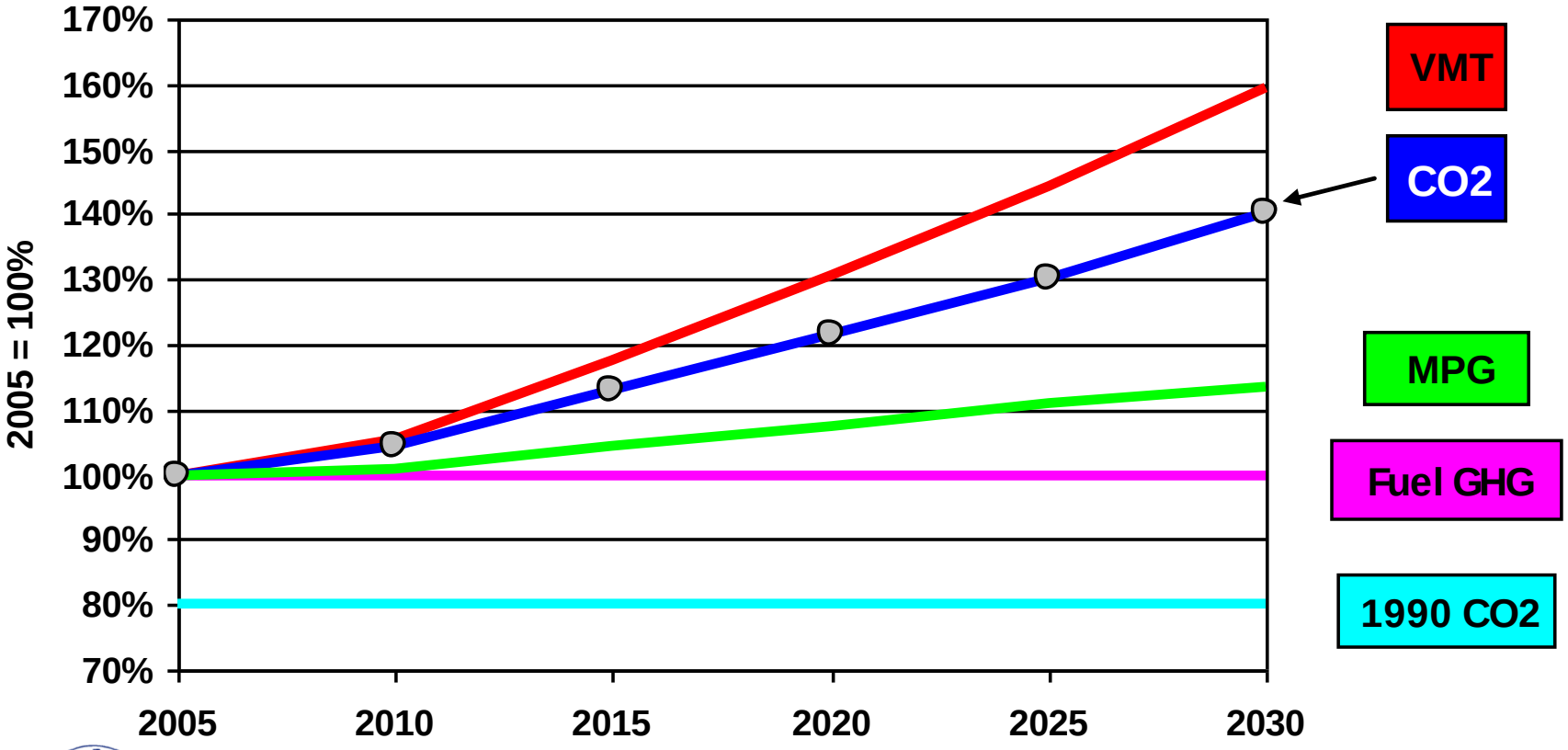
# Climate Change Impacts at 2 to 3°C (450 - 550ppm CO2e)

- > 35% of species extinct (corals, polar bears…)
- Amazon rainforest & Great Lakes ecosystem collapse
- 100s of millions displaced from coastal areas, at risk of hunger
- Partial deglaciation of Greenland Ice Sheet could begin: sea level to increase 4-6 meters over centuries to millennia

# Eye on the Prize: US must cut GHGs 60-80% below 1990 levels by 2050

- **15-30% below 1990 by 2020 to keep on track**
  - » European Commission; Höhne; Meinshausen
- Delayed action means higher risks and costs
  - » unless you're very optimistic about technology, policy or behavioral breakthroughs.
- What's "needed" from transportation depends on what's expected/possible in other sectors
  - » Unlikely to be able to compensate for transportation
- **Major reductions will be needed in all sectors**

# US VMT Growth Projected to Outpace Vehicle & Fuel Improvements




Source: EIA AEO 2007

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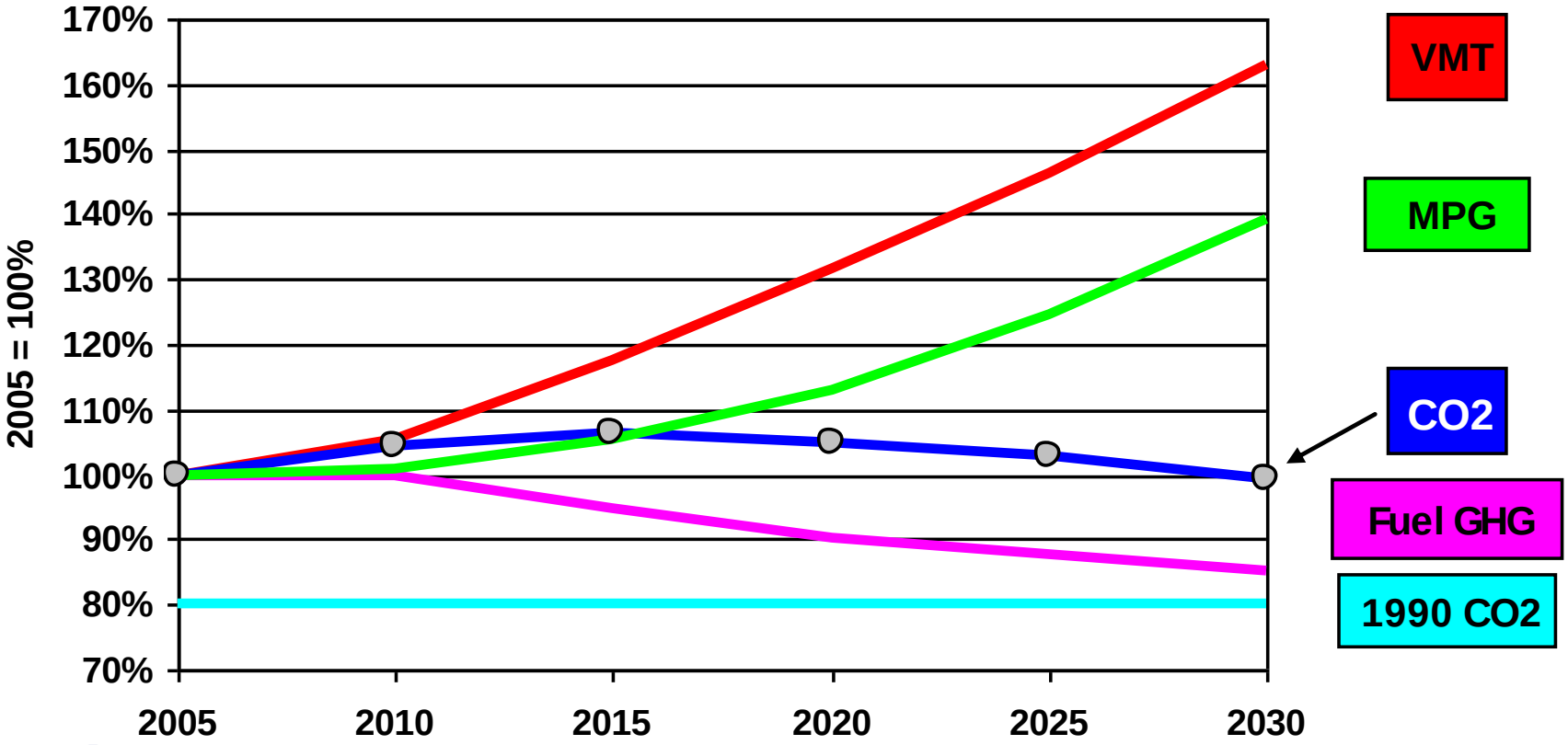
# 45 mpg CAFE in 2030 & -15% fuel GHGs: 2005 levels in 2030 or 24% above 1990




Sources: VMT: EIA with 10% rebound, MPG & Fuel: Trend Extrapolation

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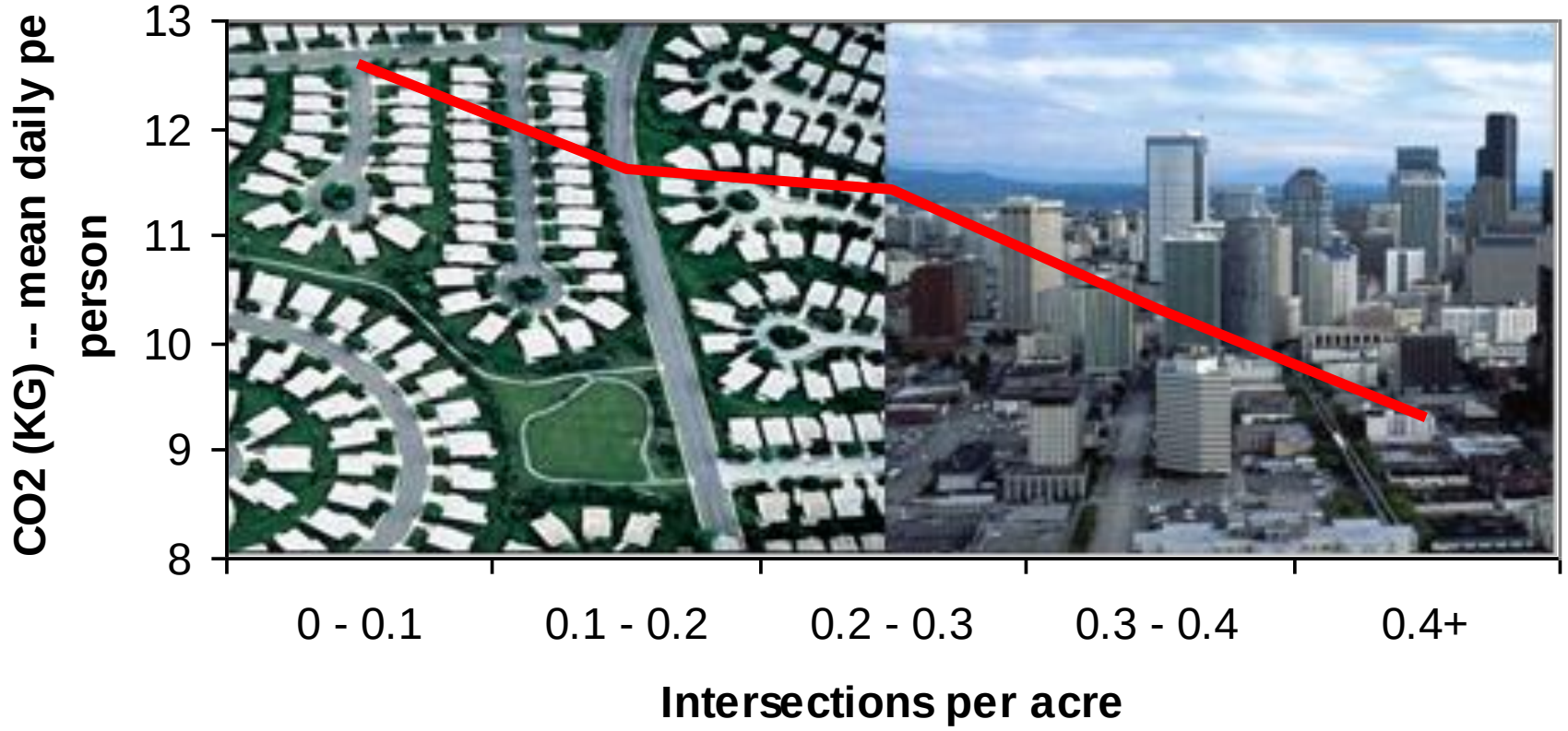
# History and Policies Matter.
## Range of performance: from Prius to Hummer

Daily VMT per Capita by Region (2005)

| | |
|---|---|
| New York - Newark | 17 |
| Portland, OR | 20 |
| Seattle | 23 |
| Atlanta | 31 |
| Houston | 39 |
| Int'l Estimates: | |
| Typical Europe | 12 |
| Hong Kong | 5 |

# Regional Location Matters

## (King County 2005, provided by Larry Frank)

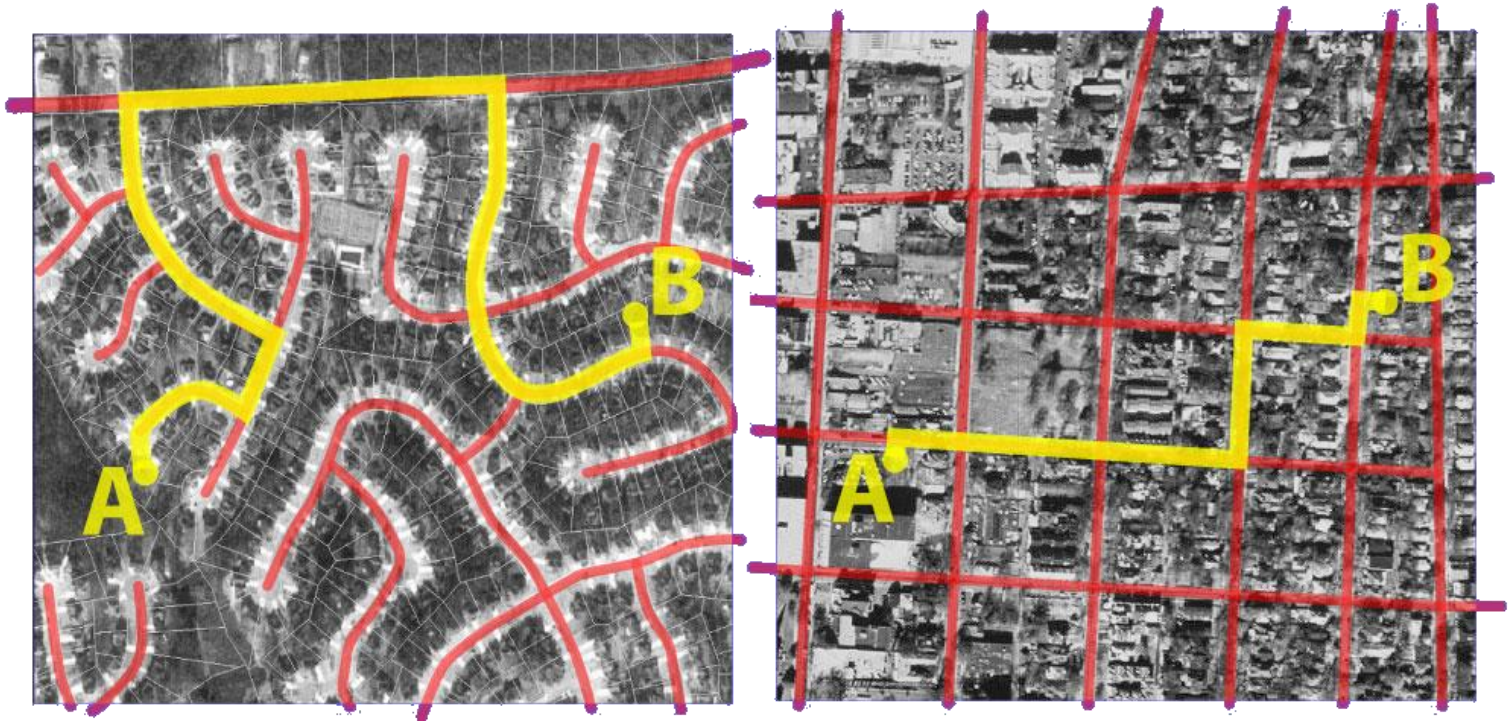





(Frank, Winkelman, Chapman, Cavage, & Leinberger . Brookings Inst., Nov. 2007)

# Design Matters

**2 km drive vs. 1 km walk**




Source: Larry Frank

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# *Growing Cooler: The Evidence on Smart Growth and Climate Change* (ULI, Sept 07)

- **Ewing, Bartholomew, Winkelman, Walters & Chen**
- Comprehensive review of 4 literatures plus new analysis
  - » Aggregate and disaggregate travel studies
  - » Regional and project-level simulation studies
  - » Addresses induced demand/development and self-selection
- **Compact development can cut VMT/capita 20-50% relative to trend by 2050**
- **Potential 16% reduction in passenger vehicle CO2 by 2050 from land use**
  - » 1/3 (reduction in VMT per capita with compact development)
  - » 2/3 (increment of new development/redevelopment)
  - » 4/5 (proportion of weighted VMT within urban areas)
  - » 9/10 (ratio of CO2 to VMT reduction)
- Funded by US EPA & the Hewlett Foundation

# Transit, Pricing, Smart Growth, etc. could cut VMT 23% by 2030 (NRDC/Cowart)

Widespread implementation of best practices:

| | | |
|---|---|---|
| 1. | **Pay-as-you-drive** | 368 B VMT |
| 2. | **Smart Growth, NMT** | 298 B VMT |
| 3. | **Speed limits & Drivers Training** | 73 B VMT |
| 4. | **Road pricing** | 65 B VMT |
| 5. | **Parking measures** | 58 B VMT |
| 6. | **Other TDM** (HOV, telecommute) | 58 B VMT |
| 7. | **Transit** | 49 B VMT |

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# The Public Wants It.
# The Market is Starting to Respond.

- Public opinion (NAR/SGA 2004 survey)
  - » 48% would opt for smaller houses w/shorter commute
- Demographic Changes
  - » Fastest growing groups -- older, non-family, non-white households -- have historically used transit more (CTOD)
- Condos
  - » Record sales, more than 12% of the market
- Forecasts
  - » Demand for large lots projected to decline (Nelson)
  - » Demand for TOD will more than double by 2030 (CTOD)
- AASHTO: goal cut VMT growth rate in half

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# The Future Ain't Here Yet

"**Nearly half of what will be the built environment in 2030 doesn't even exist yet,** giving the current generation a vital opportunity to reshape future development."

Arthur C. Nelson, "Planning for a New Era," *Journal of the American Planning Association*, Fall 2006.

**Can we Build it?**

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# Yes we can!

Photo Source: Arthur C. Nelson

# Can we retrofit suburbia?


Source: Urban Advantage

# Sure.


Source: Urban Advantage

# Ugh


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Source: Urban Advantage

# Ahhh


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Source: Urban Advantage

# State Efforts on Smart Growth & Climate

- California
  - » Climate Action Team established a smart growth working group, chaired by CEC
  - » Atty General: General Plans and EIRs should disclose and reduce GHG emissions under CEQA
  - » SB375: incentives for smart growth planning
  - » Leverage $40 billion in infrastructure bonds
- MA: Large projects must report and mitigate CO2 emissions
- NYSDOT: MPOs report GHGs from TIPs and plans
- NYC: Congestion pricing. Reduce GHGs 30% by 2030, 44% from smart growth & sustainable transport
- NJ DOT: integrating land use into transp planning

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# Recipe for Success on VMT?

- **Green-TEA**
  - » Performance criteria to reward low VMT in funding formulae
  - » Planning support (visioning, data, models)
- **Regulatory approaches**
  - » Require alternative analyses in regional transportation plans
  - » GHG Conformity?
- **Climate Policy**
  - » Fuel price signal via a carbon tax or an 'upstream' cap-and-trade
  - » Use revenues to support smart growth, transit, TDM
- **Elect regional and local leaders** with the guts, wisdom and vision to overcome 'NIMTO' and launch long-term policy solutions

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# Panelists

- **Mark Evers, Transport for London**
  - » **"Action Today to Protect Tomorrow: London's efforts to curb traffic growth"**
- **Rex Burkholder**
  - » **"$CO_2$ Reduction through Better Urban Design: Portland's Story"**
- **Ron Sims**
  - » **"King County's Vision for Land Use, Infrastructure and Climate Change"**

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# Questions/Discussion

- What's worked?
- Plans for the future?
- What sets of policies are needed at the local, state and federal levels?
- How are you engaging the public? developers?

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